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R10-MB-239c

August 1993



North Revilla Final Environmental Impact Statement

Ketchikan Pulp Company
Long-Term Timber Sale Contract

RECORD OF DECISION



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Forest
Service

Region 10

Tongass National Forest
Ketchikan Area
Federal Building
Ketchikan, AK 99901

Reply to: 1950

Date: August 23, 1993

Dear Reader:

Attached is the Record of Decision (ROD) for the North Revilla Project Area for the Ketchikan Pulp Company Long-term Timber Sale Contract. If you requested complete documentation of this decision, the following items should be found in the package:

1. Record of Decision
2. Executive Summary
3. Final Environmental Impact Statement (Volume I)
4. Final EIS Appendices A - J (Volume II)
5. Final EIS Appendix K Unit Cards - Part 1 (Volume III)
6. Final EIS Appendix K Unit & Road Cards - Part 2 (Volume IV)
7. Final EIS Appendix L Response to Public Comment (Volume V)
8. Alternative Map Pack (with seven maps)
 - (a) Map of Existing Condition (Alternative 1)
 - (b) Alternative maps 2 through 6
 - (c) Record of Decision Map

If you elected to receive the summary set of documents, the package should include only the ROD, Summary, and Alternative Map Pack. Copies of the entire Final EIS are available for review at Forest Service Offices in Ketchikan, Craig, and Thorne Bay. Copies have also been sent to libraries throughout Southeast Alaska.

The ROD documents my final decision on the selection of an alternative, and the factors considered in reaching the decision. The effective date of implementation for the decision and the Notice of Rights of Appeal are also specified in the ROD.

I want to thank those of you who took the time to review and comment on the Draft Environmental Impact Statement and also those who participated in the Subsistence Hearings. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,

DAVID D. RITTENHOUSE
Forest Supervisor

Enclosures



Caring for the Land and Serving People

North Revilla
Final Environmental Impact Statement

Ketchikan Pulp Company Long-Term Timber Sale Contract

Record of Decision

Ketchikan Area—Tongass National Forest
USDA Forest Service
Alaska Region

Lead Agency

USDA Forest Service
Tongass National Forest
Ketchikan Area

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Record of Decision

Background

In 1951 the Forest Service entered into a long-term timber sale contract with the Ketchikan Pulp Company (KPC) to harvest approximately 8.25 BBF, valid for the period 1954 to 2004. In response to the post war boom, Japanese interest in Alaska timber, and the desire to establish a stable industry in Southeast Alaska, Congress authorized the Forest Service to develop this Long-Term Contract and others, for a total supply of nearly 23 BBF over the life of the contracts.

The purpose and need for this project is to make timber available in accordance with the KPC Long-term Timber Sale Contract (No. A10fs-1042) while providing for other resources in accordance with the Tongass Land Management Plan (TLMP) and other direction (Final Environmental Impact Statement, Chapter 1). Approximately 200 million board feet of sawlog and utility volume is expected to be supplied from the North Revilla Project Area through a series of offerings, approximately 10 to 50 MMBF in size, that would contribute to volume requirements under the contract. Reasons for scheduling the environmental analysis of the North Revilla Project Area for timber harvest at this time are described in Appendix A of the Final Environmental Impact Statement (EIS). Appendix A also contains a discussion of the current timber supply and the timber volume requirements of the contract.

Public scoping, data collection and analysis, and document production began with issuance of the Notice of Intent published in the Federal Register on June 20, 1991. This Record of Decision (ROD) and the Final EIS disclose the environmental effects of the alternatives considered and document the decision for authorization of activities within the Project Area.

Decision

This Record of Decision documents my decision to make timber volume available from the North Revilla Project Area to meet KPC Long-term Timber Sale Contract requirements. My decision encompasses the following:

- the volume to make available under the contract in this Project Area in multiple “timber offerings”;
- the location and design of timber harvest units;
- the location and design of road systems;
- the location and design of log transfer facilities;
- necessary standards and guidelines, mitigation measures, and enhancement opportunities for resources other than timber;
- whether there may be a significant restriction on subsistence use and if so, related findings and measures to minimize impacts on subsistence users.
- road management objectives to include closures for resource protection.

It is my decision to select Alternative 6 with modifications for implementation in the North Revilla Project Area (see the description of Alternative 6 in Chapter 2 of the Final EIS). This decision is responsive to issues raised during scoping, data gathered and analyzed, public responses to the Draft EIS, and testimony received at the subsistence hearings.

Specifically, I select Alternative 6 and authorize the required actions to implement this decision. Furthermore:

1. I modify Alternative 6 by making the following specified minor changes to harvest units and roads. These modifications are not substantial changes to Alternative 6 which are relevant to the environmental concerns; nor do they represent significant new circumstances or information relevant to the environmental concerns and bearing on Alternative 6 or its impacts. These units and roads are described in Appendix 2 of the ROD.

Unit 4006 - Delete road in upper part of harvest unit and the southeast-most setting, and add new road on top of the ridge, to minimize soil disturbance, maintain water quality and improve economic viability.

Unit 6513 and access road - Delete unit and access road to reduce impacts to visual quality and minimize soil disturbance due to full bench road construction, while improving economic viability.

Unit 7048 - Delete switchback road in northwest part of harvest unit and add new road to south end of unit, to avoid unstable soils, minimize soil disturbance, maintain water quality and improve economic viability.

Unit 7551 - Modify road location and delete portion of harvest unit on the east side of the road to minimize soil disturbance and landslide potential. Expand unit on west side of road to avoid isolating timber per new road location, and address windthrow concerns.

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Units 8015, 8016 - Add road segment between harvest units to reduce roading and haul costs, and maintain water quality.

Units 8016, 8073 - Delete northern sections along Margaret Creek wildlife corridor and road segment between harvest units to minimize soil disturbance, maintain water quality and improve economic efficiency. Change yarding system to Running Skyline in 8016, and modify landing to reflect road change.

Unit 8022 - Relocate road to access unit from the south, to protect the Class I stream and improve economic efficiency. Delete a portion on the north side of unit along Margaret Creek.

Unit 8024 - Delete road to harvest unit and convert to helicopter yarding system to minimize soil disturbance, and maintain water quality.

Unit 8068 - Delete road in upper part of harvest unit and add new road from harvest unit 8069 lower on the slope, to minimize soil disturbance, maintain water quality and improve economic viability.

Unit 8071 - Change yarding system to Running Skyline and relocate access within the harvest unit to minimize soil disturbance, maintain water quality and improve economic viability.

Unit 8072 - Delete lower setting and road of this harvest unit and relocate access road to minimize soil disturbance and maintain water quality in the Margaret Lake system.

Units 8073, 8574 - Delete road in the lower part of these harvest units and relocate upper access road to minimize soil disturbance, maintain water quality in the Margaret Creek system and improve economic efficiency.

Unit 8076 - Delete road in upper part of harvest unit and delete southern setting to minimize disturbance to unstable soils.

Unit 8077 - Delete road in upper part of harvest unit and add new road on top of the ridge to minimize soil disturbance, maintain water quality and improve economic efficiency.

Unit 8080 - Delete road in lower part of harvest unit to minimize soil disturbance and maintain water quality.

Unit 8082 - Delete road and harvest unit settings in the upper part of the unit to minimize soil disturbance and maintain visual quality. Add a midslope road to access the residual settings.

Unit 9051 - Delete southern most portion of unit to protect wetlands and address fisheries concerns. Locate midslope road through unit to access harvest unit 7048.

Unit 9052 - Expand the unit boundary to the south to minimize the potential for windthrow, and change the yarding system to Slackline to minimize soil disturbance. Relocate the access road from unit 9051 to access from unit 9050, this will reduce road and haul costs.

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Unit 9054 - Delete road in lower part of harvest unit and add new road further up the slope, to minimize soil disturbance, avoid unstable soils, maintain water quality and improve economic viability.

Unit 9569 - Delete the portion of the unit below the road and change the yarding system to Running Skyline to minimize impacts to Class I stream and wetlands.

2. The Selected Alternative will harvest about 6,485 acres of commercial forest land to meet the requirements of the KPC Long-term Timber Sale Contract. This specified harvest will provide approximately 197 MMBF of sawlog and utility volume from 136 harvest units and 8 MMBF of right-of-way (ROW) volume, for a total of 205 MMBF. ROD Appendix 1 lists each unit approved for harvest. Design features of the harvest units are described in detail on the Harvest Unit Design Cards in Appendix K of the Final EIS. Appendix B of the FEIS displays the harvest units greater than 100 acres and the reasons for exceeding this size. Silvicultural prescriptions will be developed for each unit prior to harvesting.
3. The Selected Alternative includes partial cut harvest, rather than clearcut harvest, for 222 acres. This is consistent with Forest Service Chief's policy to reduce the amount of clearcutting. Appendix H of the FEIS displays a list of harvest units by alternative, for which partial cut harvest is prescribed. The partial cut harvest prescriptions for these units are intended to promote regeneration (especially red and yellow cedar), provide for stand structural diversity, maintain riparian habitat, maintain scenic quality, and leave young, vigorously growing trees. The impacts to residual trees will be minimized. The Harvest Unit Design Cards in Appendix K of the Final EIS provide specific direction for field layout to accomplish these objectives.
4. The Selected Alternative includes reconstruction of 33 miles of existing Forest system road, and construction of 98 miles of new system road in order to access the specified timber harvest units. Appendix K of the Final EIS contains the Road Cards with direction for the location of each road. The Road Cards list road segments and road management objectives for future management of the transportation system.
5. The existing Log Transfer Facilities (LTF's) located at Hassler Island, Klu Bay, Shrimp Bay, Fire Cove, SW Neets, and Margaret Bay will be used to transfer logs to the water after timber harvest. A new LTF will be developed at Chin Point. The Chin Point facility consists of a slide ramp for sliding log bundles into the water. The other facilities use the A-Frame method for transferring logs into the water. This consists of a stationary mat with a falling boom for lifting logs from the truck to the water. This system is located on a shot rock embankment with a vertical bulkhead to access deep water, accommodating operations in all tidal periods. The LTF at Margaret Bay includes a permanent floating dock facility for administrative and public access and safety.
6. This Record of Decision identifies mitigation measures authorized to reduce or eliminate adverse environmental effects of the timber harvest and road construction activities specified in the Selected Alternative. Chapter 2 of the Final EIS specifies the implementation and effectiveness monitoring that will be conducted to determine if the resource management objectives have been met.
7. Appendix I of the FEIS includes descriptions of the enhancement opportunities for the Selected Alternative which are feasible following implementation of this action. These opportunities will be included in Sale Area Improvement (SAI) plan(s) developed in conjunction with the timber sale contract documents for each offering.

8. I have identified certain lands which contain important wildlife habitat which will remain in their current condition for the duration of this project. These lands are depicted on the map labeled Old Growth Prescription in the map packet. Subsequent projects and NEPA analysis may specify changes in the locations of these areas; however, sufficient acreage will exist in an old-growth condition at all times to meet the requirements for the Old Growth Prescription specified in the 1979 Forest Plan (as amended).
9. I have determined that there may be a significant possibility of a significant restriction of subsistence use of deer in the Project Area in the future. Although the analysis in Chapter 3 of the Final EIS indicates that no such restriction of subsistence use in the Project Area will occur at the present time or foreseeable future; increased demand, and cumulative effects of future actions may at some point result in a significant restriction of subsistence use of deer and marten in the Project Area.
10. The changes to Alternative 6 which form the ROD and the new Proportionality for the ROD are as follows:

Table 1
Changes to Alternative 6 for selection to ROD Alternative

Unit	MBF	Total Acres	ROD Changes			
			Volume Class 4 Acres	Volume Class 5 Acres	Volume Class 6 Acres	Volume Class 7 Acres
Alt. 6	198,528	6,568	1,997	4,056	515	0
#6513	-628	-21	-5	-16	0	0
#7551	+645	+15	-4	+19	0	0
#8022	-252	-3	-25	+22	0	0
#8072	-396	-18	-18	0	0	0
#8076	-59	-9	0	-9	0	0
#8082	-953	-34	-1	-34	+1	0
#9051	+37	-11	0	-11	0	0
#9569	-49	-2	0	-2	0	0
Total Changes	-1,655	-83	-53	-31	+1	0
New Totals	196,873	6,485	1,944	4,025	516	0

SOURCE: Somrak, July 1993

Table 2
Proportionality for ROD

	Timber Base	Volume Class 6 & 7	Proportionality
11/1990	83,049	7,328	8.82%
Post-11/1990	82,672	7,328	8.86%
Alternative 6 changes to ROD	-6,485	-516	N/A
ROD Proportionality	76,187	6,812	8.94%

SOURCE: Somrak, July 1993

Note: This information prepared according to R-10 Directive to FSH 2409.18

Note: 8.82 percent is the proportion of volume class 6 & 7 timber remaining
as of the date TTRA legislation was passed.

Reasons For Decision

1. In making my decision, I worked to assure consideration of all issues and to take into account the competing interests and values of the public. There were many divergent public, personal, and professional opinions expressed during this project. This decision will probably not completely satisfy any one particular group or individual. However, I considered all views, and I believe the decision I have made is reasonable. The Selected Alternative provides a beneficial mix of resources for the public within the framework of the existing laws, regulations, policies, public needs and desires, and capabilities of the land, while meeting the stated purpose and need for this project.
2. My decision to implement this Selected Alternative is in conformance with the Tongass Land Management Plan (TLMP) as amended, and sound National Forest management. I have considered the need to help maintain a current timber supply to KPC (as required by the KPC Long-Term Timber Sale Contract) in support of community stability. I have also considered the need to provide strong protection measures for fish, wildlife, and other resources important to subsistence, recreation, commercial, and other uses.

3. I have determined that the harvest volume of the Selected Alternative meets the purpose and need defined for the project.
4. I have deferred timber harvest in the majority of the large unfragmented blocks of old growth about which the public and the State of Alaska expressed concerns. My objective is to maintain their integrity for as long as possible as we continue to learn more about old growth dependant species, and to maintain options for various viable population strategies being considered in the Forest Plan Revision. The large unfragmented blocks that I have maintained include: Orchard Lake and Traitors Cove. These areas were identified by either the State of Alaska, the Interagency Viable Population Committee, or specific individuals as important old growth blocks. They will be retained as old-growth habitat for the duration of this project. This decision will defer harvest activities in them only for the duration of this project. Any future harvest will be considered through the NFMA and NEPA process.
5. All alternatives are consistent with the proportional harvest requirements specified in the Tongass Timber Reform Act (TTRA) and as outlined in the Forest Service Handbook. The Selected Alternative meets or improves the proportionality which existed prior to the passage of the TTRA for Management Area K32.
6. I have ensured that all alternatives including the Selected Alternative meet the visual quality objectives (VQO's) as specified from the priority travel routes and their viewsheds. These priority travel routes and viewsheds include: Behm Canal, Traitors Cove, Margaret Cove, Neets Bay, Gedney Pass, Shrimp Bay, Klu Bay, Orchard Lake, and Hassler Island. Actual viewpoints used in the analysis for meeting the VQO's for each viewshed are specified in Chapter 3 of the Final EIS. Other travel routes will meet the visual quality objective of maximum modification.
7. I have designed the Selected Alternative so that only seven units or combinations of units will exceed 100 acres. The units which do exceed 100 acres are justified on the basis of topography, effects upon wildlife and fish habitat and logging systems and transportation system requirements. These units are described in Appendix B of the ROD.
8. In the development of the Selected Alternative, I have taken action to implement the Chief's policy on ecosystem management and a reduction in clearcutting. I have specified that 222 acres will be harvested using shelterwood silvicultural treatments to promote regeneration, especially for red and yellow cedar. All timber harvest in the selected alternative, except that described above, is prescribed for clearcut harvest. Clearcutting of these units will meet the objective of maintaining fast growing, mistletoe-free stands of mixed species and is the optimum method of harvesting. Finally, some units will include ecosystem management principals including possible leaving of standing green trees, small islands and other forms of structural diversity. The specific objectives for each unit are listed in Chapter 3 of the Final EIS and in the Unit Design Cards, Appendix K of the Final EIS.
9. Shelterwood harvest is a relatively new silvicultural system in Southeast Alaska. However, the units for which shelterwood harvest is prescribed were identified and designed to ensure the success of the regeneration. This includes removing a portion of the trees within the unit, while successfully retaining individual trees, and/or groups of trees. The specific harvest objectives are described in the Harvest Unit Design Cards. Silviculture and logging system specialists will apply this direction in the preparation of the units for harvest. Sale administrators will ensure that the logging

Record of Decision

operations accomplish the harvest objectives for these units. Implementation of these prescriptions is intended to add to our knowledge of alternate treatments for Southeast Alaska timber types.

10. The selected alternative will provide the highest economic return to the Federal Government while still meeting the previously mentioned resource objectives. The selected alternative provides a net return of \$17.50 per thousand board feet.
11. Public response included dropping all units that were included to be helicopter logged. After careful consideration I have decided to retain a mix of logging systems to accomplish the goals and objectives of protecting the resources. 17 percent of the acreage is scheduled to be helicopter logged in the Selected Alternative. I have retained this logging system in the ROD to help mitigate watershed, wildlife and visual resource concerns. Scheduling units that use helicopter logging systems will help disperse harvest, decrease road densities and help stabilize the percentage of helicopter logging required in future entries. Since road access is minimized with the helicopter yarding system, returns to the State from the 25% Fund will be reduced since a part of that fund is calculated from Purchaser Credit received for road construction.
12. Public concern was expressed regarding harvest in the Traitors Cove area. I have deferred harvest in the most sensitive areas of Traitors Cove and have identified a significant portion to be managed for old-growth habitat conditions for the duration of this project. The harvesting which will occur produces no major difference in habitat capability when compared to the other alternatives (see ROD Table 3).

The north shore of Traitor's Cove, outside the tide race has relatively high wildlife value when compared to the rest of the Project Area. However, it does not constitute a significant tract of high value habitat when compared to other areas of the Ketchikan Area.

Harvest is also planned for the upper reaches of Traitor's Creek. However, all of the units are above the barrier which prevents anadromous fish passage. Therefore there will be no significant effect on salmon production within Traitor's Creek.

These harvest units are designed to minimize the effects on subsistence use by deferring harvest in the lower portion of Traitor's Creek. This area was identified by local subsistence users as one of the important subsistence use areas.

How Issues Are Addressed

In the following summary, I detail how the Selected Alternative addresses each of the significant issues. Refer to Table 1 of this Record of Decision to supplement the following discussion and provide a comparison of the proposed activities and environmental consequences of the alternatives, including the Selected Alternative.

Issue 1

Timber Harvest Economics

Of the five action alternatives, only two (Alternative 3 and 6) produced a positive mid-market stumpage rate. The Selected Alternative produces the highest mid-market stumpage rate at \$17.50 per thousand board feet. Actual returns from the harvest will be determined for each timber offering based on current market conditions as determined through the Timber Sale Appraisal process.

Another indicator of timber harvest economics is the amount of helicopter logging required. Generally speaking, the most expensive logging system is helicopter, followed by slackline. Only one alternative completely excludes helicopter yarding; all other action alternatives, including the Selected Alternative, have between 13 and 26 percent of the harvest acres requiring helicopter yarding. The Selected Alternative contains 17 percent of the acreage in helicopter yarding. I felt it was not reasonable to postpone all helicopter yarding for future projects.

The economics of timber harvesting is also indicated by the amount of volume which can be harvested per mile of new specified road construction. Alternatives range from 1.5 MMBF (Alt. 5) to 2.1 for the Selected Alternative in terms of MMBF per mile of new road construction.

The economics of timber harvest operation is also indicated by the amount and cost of road construction, reconstruction, and bridge construction. The Selected Alternative has the lowest amount of road construction and associated cost. It builds a total of 98 miles with total construction and reconstruction costs at \$17.0 million. The other alternatives have costs that range up to \$29 million.

Issue 2

Fish Habitat and Water Quality

Chapter 3 of the Final EIS concludes that the potential effects on fish habitat and water quality are minimal for all alternatives. All alternatives meet the requirements and the intent of the Clean Water Act and the Tongass Timber Reform Act. Implementation of potential fish habitat enhancement projects, listed in Appendix I of the Final EIS, will improve the habitat for fish productivity. Implementation of the TTRA requirement to provide a minimum 100-foot buffer on Class I streams and Class II streams flowing directly into Class I streams will effectively mitigate direct stream channel impacts from proposed timber harvest and road construction activities. Adherence to Best Management Practices (BMP's) outlined in the Soil and Water Conservation Handbook (FSH 2509.22) during timber harvest and road construction

activities will minimize the potential for impacts on fish habitat. BMP's are noted on individual Harvest Unit Design Cards and Road Cards, Appendix K of the Final EIS.

In a memo to District Rangers dated December 31, 1992, I directed that actions be taken immediately to ensure that all TTRA buffers meet the minimum 100-foot width, or the minimum width prescribed to meet standards and guidelines for streams when the buffer is greater than 100-feet in width. These actions include a quality control program to ensure accurate measurement of the minimum buffer width and length, and finally, training personnel to fully implement TTRA buffers. The District Ranger will be held fully accountable for proper implementation of TTRA requirements.

The Final EIS also predicts that no significant changes in stream temperature regimens, large woody debris recruitment, or stream nutrient cycles are expected as a result of timber harvest activities. Riparian buffers and stream crossings as prescribed on the Harvest Unit Design Cards and Road Cards in Appendix K of the Final EIS will minimize any adverse effects to water quality and fish habitat resulting from the authorized activities.

Each alternative also has limits specified on the amount of cumulative watershed disturbance as described by the standards and guidelines in the Supplement to the Proposed Revised Forest Plan. All alternatives will limit the amount of cumulative watershed disturbance within each third order or larger watershed to less than 35 percent of the total watershed land base within a 15-year period.

Furthermore, cumulative timber harvest will not exceed 25 percent of the acres associated with class 3 streams in the high gradient contained riparian process group every 20 years for each 3rd order or larger watershed.

Issue 3

Recreation and Scenic Quality

This issue addresses concerns for outdoor recreation and scenic viewing opportunities offered in and around the North Revilla Project Area and the effects timber harvest and transportation system development may have upon these opportunities.

The Selected Alternative locates timber harvest within previously un-harvested areas and increases development within the existing developed areas. However, the Project Area contains only a small amount of the total recreation opportunities on the Tongass National Forest, and there are similar recreation opportunities nearby. This shift in recreation opportunities is a minor impact when viewed forest wide.

All alternatives have similar effects on the distribution of Recreation Opportunity Spectrum (ROS) acres within the Project Area.

The current recreation inventory for the North Revilla Project Area contains 17 Recreation Places. Five of these places will not be directly affected by any of the proposed activities in the alternatives. The Selected Alternative has the second lowest amount of timber harvest activities proposed in these Recreation Places. It contains some timber harvest in 11 of the 17 Recreation Places.

All alternatives including the selected alternative meet the visual quality objectives as specified from the priority travel routes and their viewsheds. These priority travel routes and viewsheds include: Behm Canal, Traitors Cove, Margaret Cove, Neets Bay,

Gedney Pass, Shrimp Bay, Klu Bay, Orchard Lake, and Hassler Island. Other travel routes will meet the visual quality objective of maximum modification.

Issue 4

Wildlife Habitat

The greatest direct effect on wildlife habitats would be the loss of old-growth forest and a change in forest habitat conditions. Special emphasis habitats such as beach and estuary fringe are protected through timber harvest unit design and road location. The Selected Alternative would not reduce any of the six habitat types in the Project Area more than 1 percent (see Chapter 3 of the Final EIS). All alternatives would result in impacts consistent with implementation of the current TLMP and Alternative P of the Proposed Forest Plan Revision.

The Selected Alternative, would decrease current habitat capabilities for all Management Indicator Species (MIS) by 14 percent or less. Deer, bear, river otter, bald eagle, and wolf habitat capability will decrease by less than six percent. Habitat capability for marten would decrease about 10 percent in the Selected Alternative. Hairy woodpecker habitat capability would decrease by about 14 percent in the Selected Alternative. Brown creeper habitat capability would decrease by about 12 percent in Selected Alternative. Habitat capability is calculated utilizing models, and does not necessarily indicate current or future populations, but rather is a means to estimate potential effects.

Forest fragmentation is another indicator of potential effects on wildlife. Increased amount of forest fragmentation indicates reduced habitat potential for species which are thought to be dependant on interior old-growth forest habitat. One way to analyze forest fragmentation is to measure the reduction of large, contiguous blocks of old-growth forest. All action alternatives reduce the acres remaining in large (greater than 10,000 acres) old-growth blocks by less than 37 percent. The Selected Alternative was specifically designed to retain important old-growth blocks in the Orchard Lake and Traitors Cove areas. The patch size effectiveness was also similar for all action alternatives. With few exceptions, wildlife habitats will remain connected by beach and estuary fringe, stream buffers, steep slopes, and areas not scheduled for harvest.

Another indicator of effects on wildlife habitat values is analyzing the proposed Project design and determining if it meets the strategy recommended by the Interagency Viable Populations Committee. The recommendation of this Committee is still draft, but can be used as a comparison between alternatives. Alternatives 4, 5 and 6 were designed to meet the Interagency Committee's recommendations for maintaining well-distributed, viable populations of wildlife. The Selected Alternative was specifically designed to retain large old growth blocks, including the blocks within Orchard Lake and Traitors Cove.

Issue 5

Subsistence Use

This issue reflects public concern for the availability of wildlife, marine life, and plants for customary and traditional use by rural Alaska residents. The Alaska National Interest Lands Conservation Act (ANILCA) requires the Forest Service to determine if proposed activities may significantly restrict use of subsistence resources. If such a finding is made, then ANILCA requires public hearings and determinations regarding actions to minimize impacts prior to proceeding with a project.

Chapter 3 of the Final EIS contains the ANILCA 810 subsistence analysis. In summary, that analysis concludes there may be a significant possibility of a significant restriction of subsistence use of deer and marten in the Project Area in the future. The analysis, however, also concludes that there is no significant possibility of a significant restriction of subsistence use of Sitka black-tail deer in the Project Area for any communities or users of the Project Area at the present time, nor is there a likely restriction projected through 2040. However, cumulative effects of potential future actions, with increased demand (particularly if a road connection is made from Ketchikan to the Project Area), may result in a restriction in the future. Current harvest levels of marten in WAA 510 are at the peak of what can be harvested on a sustained basis (assuming a 40 percent harvest of the modeled habitat capability). Cumulative effects of future action or an increase in demand (particularly if a road connection is made from Ketchikan to the Project Area), may result in a restriction in the harvest of marten in WAA 510. Cumulative effects of the alternatives over the rotation do not present a significant possibility of a significant restriction for subsistence resources other than deer and marten.

Finally, the Selected Alternative reflects efforts of the Forest Service to minimize effects on subsistence resources used by those rural communities that would be most likely to receive the highest priority for game in the event of an ANILCA Section 804, Tier II restriction. The Selected Alternative defers timber harvest in the areas of Orchard Lake and Traitors Cove for subsistence reasons.

Issue 6

Social and Economic Effects

This issue reflects concern about economic development and employment, and about maintaining Alaskan lifestyles. Social and economic effects are important to the Forest Service in its land management decision making. Land use designations, scheduling of activities and rural development program decisions, are all made with consideration of social and economic effects.

Implementation of the Selected Alternative authorizes harvest of approximately 197 MMBF of timber volume from harvest units, and 8 MMBF from road right-of-ways, for a total of 205 MMBF. Additionally, it authorizes new road construction on approximately 98 miles of road, and reconstruction of 33 miles of existing road. It continues the operation in the sort yards at Thorne Bay. The Selected Alternative provides raw materials to support the Ketchikan pulp mill and sawmill. Harvest of this level will produce, on the average, 448 jobs annually over the next 4 years.

None of the alternatives is projected to have any effect on income or employment opportunities in the sport or commercial fishing industries or those related economic sectors. Since little commercial recreational activity takes place in the North Revilla Project Area and because the alternatives affect only some of the inventoried Recreation Places, no significant impact is expected on employment and income opportunities in the recreation and tourism industry.

I have verified that the harvest levels proposed for the Selected Alternative are consistent with the principles of long-term sustained yield and non-declining even flow. Analysis in Chapter 3 of the Final EIS and the Tongass Forest Plan Draft Revision indicate that these harvest levels can be sustained over time, assuming economic predictions take place on schedule and the suitable timber base remains relatively constant over time.

Issue 7

Marine Environment

Chapter 3 of the Final EIS concludes that the potential effects on the marine environment will be localized and are minimal for all alternatives. During the transfer of logs from land to water, bark is sloughed off and may be deposited on the ocean bottom; bark also is continually sloughed off by agitation by wind and waves while the logs are in rafts. All LTF's in the Project Area have been designed to maximize flushing of suspended bark away from the LTF area to deep water before it can accumulate on the bottom. All alternatives meet the requirements and the intent of the Clean Water Act Section 404 (b)(1), and the Tongass Timber Reform Act. Adherence to Alaska Timber Task Force siting guidelines and Best Management Practices (BMP's) outlined in the Soil and Water Conservation Handbook (FSH 2509.22) during transfer and rafting activities will minimize the potential for impacts on the marine environment. BMP's are noted on individual Harvest Unit Design Cards and Road Cards, Appendix K of the Final EIS.

The existing Log Transfer Facilities (LTF's) located at Hassler Island, Klu Bay, Shrimp Bay, Fire Cove, SW Neets, and Margaret Bay will be used to transfer logs to the water after timber harvest. A new LTF will be developed at Chin Point. The Chin Point facility consists of a slide ramp for sliding log bundles into the water, with an assist for slowing the velocity of bundles entering the water. The other facilities use the A-Frame method for transferring logs into the water. This consists of a stationary mat with a falling boom for lifting logs from the truck to the water. This system is located on a shot rock embankment with a vertical bulkhead to access deep water, accommodating operations in all tidal periods.

Public Involvement

Public involvement has been instrumental in identifying issues, formulating alternatives, and influencing this decision. Public scoping and involvement activities for the North Revilla Project Area are listed in Chapter 1 and Appendix L of the Final EIS. A summary of the significant issues was provided in a previous section of this ROD and in Chapter 1 of the Final EIS.

Coordination With Other Agencies

From the time scoping was initiated, meetings and site visits with interested State and Federal agencies have occurred. Issues were discussed and information was exchanged.

Two meetings were held in Juneau with the State of Alaska including the Department of Governmental Coordination, Department of Fish and Game, Department of Natural Resources, and the Department of Environmental Conservation.

Consultation was held in Ketchikan with the Alaska Department of Fish and Game to discuss the amount and distribution of the Old Growth Prescription (retention) acres.

A Biological Assessment was prepared and sent to the U.S. Fish and Wildlife Service, and to the National Marine Fisheries Service, as part of the Section 7 consultation under the Endangered Species Act.

The Final EIS identifies the agencies who were informed of and/or involved in the planning process (see List of Agencies, Organizations, and Individuals to Whom Copies of this Statement Were Sent). See also the discussion of subsistence in the section entitled Findings Required by Law, later in this ROD.

Alternatives

Alternatives Eliminated from Detailed Study

A number of alternatives were examined, but not considered for detailed study in this EIS. This section presents those alternatives and the rationale for not considering them further.

Alternative A

Single Resource or Issue Alternatives that focused upon one resource or issue were eliminated from consideration as implementable alternatives. While alternatives constructed around a single resource may not be implementable, the issue itself may still be significant. Each alternative will be evaluated against all the significant issues.

Alternative B

Transportation/Utility Corridor between Ketchikan and the Project Area
The proposed road link and utility corridor are separate projects and independent from this Draft EIS. The road link project is not reasonably foreseeable. The transportation/utility corridor is not a connected action, and will require a separate

NEPA document displaying the issues and alternatives developed during the public involvement process.

Alternative C

Harvest in the Orchard Lake area The Interdisciplinary Team received numerous comments during scoping about the need to protect Orchard Lake. The same comments were received during the TLMP Revision process. Under Alternative P of the TLMP Draft Revision (1991a) the Orchard Lake area is now proposed for management under the Semi-primitive Recreation (SP) management prescription, which does not allow for timber management. Forest transportation system linkages are allowed for under the Semi-primitive land use designation. However, no transportation linkages are proposed in the Orchard Lake area within the management prescription boundary, under any of the action alternatives.

Alternative D

Inability to Meet the Purpose and Need Several public comments requested the Forest Service analyze a reduced harvest within the North Revilla Project Area. Because of the defined purpose and need of the project, a significantly lower volume alternative was not considered in detail (see item #3 under the Process Used to Formulate Alternatives, discussed earlier in Chapter Two). Additional information on why lower volumes were not considered is included in Appendix A, and summarized in Chapter One under the section titled "How the North Revilla Project Area was Selected".

Alternative E

Public Comment Concerning Specific Areas A number of individuals and non-governmental groups submitted comments in response to the DEIS, requesting that the Forest Service defer harvest within certain parts of the North Revilla Project Area. Alternative E was developed which incorporated much of this comment, and deferred harvest in several areas of concern. Alternative E resulted in an estimated harvest of 3,637 acres and approximately 107 MMBF of timber volume. Because of the defined purpose and need of the project, this significantly lower volume alternative was not considered in detail (see item #3 under the Process Used to Formulate Alternatives, discussed earlier in Chapter Two). Additional information on why lower volumes were not considered is included in Appendix A, and summarized in Chapter One under the section titled "How the North Revilla Project Area was Selected".

Alternatives Considered for Detailed Study

Six alternatives for making timber available to KPC from the North Revilla Project Area were considered in detail. Each alternative is consistent with the TLMP (1979a, as amended) and Alternative P of the TLMP Draft Revision (1991a). For each alternative this section provides a discussion of: (1) the emphasis or intent of the alternative, (2) various resource outputs associated with implementation, and (3) guidelines used in selecting units and roads consistent with the emphasis. Alternatives are compared in detail later in this ROD and summarized in Table 3.

Alternative 1 (No Action)

Emphasis The emphasis of this alternative is to propose no new timber harvest from the North Revilla Project Area for the Long-Term Contract at this time. It does not preclude timber harvest from other areas at this time, or from the North Revilla

Project Area at some time in the future. The CEQ regulations 40 CFR 1502.14d requires a “No Action” alternative be analyzed in every EIS to serve as a benchmark by which effects of the other action alternatives are to be measured. The Existing Condition map (Alternative 1), in the separate map packet, shows the distribution of vegetation associated with no new timber harvest.

Outputs There are no new timber harvest outputs associated with this alternative. Visual quality, wildlife habitat quality, semi-primitive recreation opportunities, as well as other resource values would remain at their current condition.

Guidelines There were no units selected for this alternative.

Alternative 2

Emphasis The emphasis of this alternative is to accelerate progress toward the desired future condition for timber management while meeting Forest Plan Standards and Guidelines for other resources. Timber volume made available to KPC is maximized this entry under this alternative. This alternative is designed to evaluate the effects of harvesting as much of the Project Area as possible in a combination that still meets standards and guidelines. This alternative serves as an upper level benchmark that can be used to project the cumulative effects of the reasonably foreseeable future activities (see Appendix A) within the Project Area.

Outputs Implementation of this alternative would schedule the harvest of 8,232 acres, in 205 harvest units for approximately 251 MMBF of sawlog and utility volume, indicating an average unit size of 40.1 acres. In addition 16 MMBF of road right-of-way volume will be harvested, for a total of 267 MMBF of sawlog and utility volume. Of this harvest, 9 units totaling 295 acres are planned for partial cut; the remainder are planned for clearcut harvest. To implement this level of harvest 153 miles of new road would be constructed, and 46 miles of existing road would require reconstruction. This indicates an average of 1.7 MMBF per mile of new road construction and a total of 1.3 MMBF per mile of road. It schedules 1,711 acres or 51.8 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of -\$18.84 per MBF.

The development of one new Log Transfer Facility (LTF) and six existing LTF's will be required to implement this alternative. Floating logging camps are anticipated with the Margaret, Fire Cove and Shrimp Bay LTF's. The road connection between Margaret Bay and Fire Cove (Traitor's Creek) would eliminate the need for an additional floating camp at Fire Cove. The Alternative 2 map, provides the spatial relationship between roads, units and other geographic features of the North Revilla Project Area.

Planning Criteria Criteria used in selecting units and roads consistent with the emphasis of Alternative 2 include the following:

Emphasize timber production and road access by harvesting in all watersheds that contain suitable timber.

Emphasize roaded modified recreation opportunities throughout the Project Area.

Economics of timber harvest is not a primary consideration: Utilize nonstandard yarding systems, including helicopters, where feasible, to access all available timber.

Concentrate harvest in the higher volume classes while meeting the proportionality direction contained in the Tongass Timber Reform Act (TTRA).

Concentrate harvest through the use of large clearcuts (within NFMA constraints).

Alternative 3

Emphasis The objective of this alternative is to emphasize timber economics and conventional cable yarding methods. The location of harvest units, selection of silvicultural prescriptions, logging systems, and a transportation network is primarily based on maximizing the mid-market value. This entry does not propose any helicopter timber harvest. This approach emphasizes a positive net economic return for the proposed harvest units, by seeking to minimize logging and road construction costs.

Outputs Alternative 3 schedules the harvest of 124 individual harvest units, totaling 174 MMBF of sawlog and utility volume from 5,734 acres, indicating an average unit size of 46.2 acres. In addition 8 MMBF of road right-of-way volume will be harvested, for a total of 182 MMBF of sawlog and utility volume. Of this harvest no partial cutting or helicopter yarding is proposed. This alternative requires the construction of 103 miles of new specified roads plus 32 miles of reconstruction. This indicates an average of 1.8 MMBF per mile of new road construction and a total of 1.3 MMBF per mile of specified road. Preliminary analysis indicates a net mid-market stumpage value of \$16.03 per MBF.

The development of one new Log Transfer Facility (LTF) and six existing LTF's will be required to implement this alternative. Floating logging camps are anticipated with the Margaret, Fire Cove and Shrimp Bay LTF's. The alternative 3 map, provides the spatial relationship between roads, units and other geographic features of the North Revilla Project Area.

Planning Criteria Criteria used in selecting units and roads consistent with the emphasis of Alternative 3 include the following:

Defer timber harvest in units scheduled for helicopter or long span skyline (over 2000 feet) yarding.

Maximize volume available through conventional cable yarding systems and construct the minimum amount of associated new roads and bridges necessary to achieve the stated purpose and need.

Construct roads to the minimum standard required to harvest timber.

Concentrate harvest in the higher volume classes while meeting the proportionality direction contained in the TTRA.

Concentrate harvest through the clearcut harvest method. Large clearcuts will be utilized where other resource values allow. NFMA requirements for clearcut size limitations will be followed.

Alternative 4

Emphasis The emphasis of this alternative is to meet the stated purpose and need while configuring planned harvest units throughout the Project Area to reduce harvest of high value wildlife habitat and to maintain the integrity of large, unfragmented blocks of old-growth forest to the extent practicable. This approach emphasizes a deferral of harvest within the most valuable wildlife habitats, subsistence use areas, and seeks to minimize the effects of forest fragmentation.

Outputs Alternative 4 schedules the harvest of 123 individual harvest units, totaling 178 MMBF of sawlog plus utility volume from 5,920 acres, indicating an average unit size of 48.1 acres. In addition 9 MMBF of road right-of-way volume will be harvested, for a total of 187 MMBF of sawlog and utility volume. Of this harvest, 5 units totaling 204 acres are planned for partial cut; the remainder are planned for clearcut harvest. This alternative requires the construction of 95 miles of new specified roads plus 26 miles of reconstruction. This indicates an average of 2.0 MMBF per mile of new road construction and a total of 1.5 MMBF per mile of specified road. It schedules 1,545 acres or 47.2 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of -\$4.63 per MBF.

The development of one new Log Transfer Facility (LTF) and five existing LTF's will be required to implement this alternative. Floating logging camps are anticipated with the Margaret, Fire Cove and Shrimp Bay LTF's. The Alternative 4 map, provides the spatial relationship between roads, units and other geographic features of the North Revilla Project Area.

Planning Criteria Criteria used in selecting units and roads which would be consistent with the emphasis of Alternative 4 include the following:

- Place greater emphasis on wildlife corridors, including vertical corridors between different elevation zones.

- Maintain key wildlife areas including but not limited to high value deer winter range.

- Concentrate harvest at high elevations and on north and east aspects to the extent practicable.

- Concentrate timber harvest in the lower volume class stands.

- Minimize construction of new roads, bridges and log transfer facilities.

- Avoid impacting high quality old-growth redcedar sites near shorelines that may have important subsistence/cultural values.

- Maintain large blocks of old-growth winter range habitat by concentrating harvest through the use of large clearcuts if it enhances wildlife values.

- Minimize harvest in large un-fragmented old growth blocks including the proposed Traitors Cove Habitat Conservation Area.

Alternative 5

Emphasis The emphasis of this alternative is to meet the stated purpose and need while configuring planned harvest units throughout the Project Area to minimize impact on visually sensitive areas. Units will be more dispersed, less visible and are designed to blend into the characteristic landscape.

Outputs Alternative 5 schedules the harvest of 188 individual harvest units, totaling 193 MMBF of sawlog plus utility volume from 6,424 acres, indicating an average unit size of 34.2 acres. In addition 15 MMBF of road right-of-way volume will be harvested, for a total of 208 MMBF of sawlog and utility volume. Of this harvest, 6 units and 143 acres are planned for partial cut; the remainder are planned for clearcut harvest. This alternative requires the construction of 137 miles of new specified roads plus 37 miles of reconstruction. This indicates an average of 1.5 MMBF per mile of new road construction and a total of 1.2 MMBF per mile of road. It schedules 830 acres or 24.4 MMBF of volume for helicopter yarding. Preliminary analysis indicates a net mid-market stumpage value of-\$22.53 per MBF.

The development of one new Log Transfer Facility (LTF) and six existing LTF's will be required to implement this alternative. Floating logging camps are anticipated with the Margaret, Fire Cove and Shrimp Bay LTF's. The Alternative 5 map, provides the spatial relationship between roads, units and other geographic features of the North Revilla Project Area.

Planning Criteria Criteria used in selecting units and roads which would be consistent with the emphasis of Alternative 5 include the following:

- Minimize activity in inlets and bays to the extent practicable

- Minimize timber harvest in seen areas. Utilize smaller created openings and widely dispersed units. Emphasize gentle or flat topography to help screen units.

- Locate road construction and timber harvest activities to avoid unique recreation places and sites. Attempt to avoid activities in close proximity to recreation facilities, and other areas of recreational use such as streams, lakes and beaches. Minimize the number and size of harvest units in areas visible from saltwater, lakes or recreation facilities.

- Minimize harvest in the proposed Traitors Cove Habitat Conservation Area.

Alternative 6

Emphasis The emphasis of this alternative is to meet the defined purpose and need while responding to public comments and by configuring planned harvest units throughout the Project Area to provide for an economically viable timber harvest, while seeking to minimize the effects on high value wildlife habitat, large un-fragmented old growth blocks, key recreation places and ongoing research areas (Margaret Lake Fish Pass).

Outputs Alternative 6 schedules the harvest of 137 individual harvest units, totaling 198 MMBF of sawlog plus utility volume and 6,568 acres indicating an average unit size of 47.9 acres. In addition 8 MMBF of road right-of-way volume will be harvested, for a total of 206 MMBF of sawlog and utility volume. Of this harvest, 4

units totaling 222 acres are planned for partial cut; the remainder are planned for clearcut harvest. It proposes 1,113 acres and 33.9 MMBF of helicopter yarding. This alternative requires the construction of 98 miles of new specified roads plus 33 miles of reconstruction. It achieves 2.1 MMBF per mile of new road construction and 1.6 MMBF per mile of specified road construction. Preliminary analysis indicates a net mid-market stumpage value of \$17.50 per MBF.

The development of one new Log Transfer Facility (LTF) and six existing LTF's will be required to implement this alternative. Floating logging camps are anticipated with the Margaret, Fire Cove and Shrimp Bay LTF's. The Alternative 6 map, provides the spatial relationship between roads, units and other geographic features of the North Revilla Project Area.

Planning Criteria Criteria used in selecting units and roads which would be consistent with the emphasis of Alternative 6 include the following:

Minimize harvest levels near saltwater inlets and bays.

Minimize the amount of road and bridge construction necessary to achieve the stated purpose and need.

Concentrate harvest in the higher volume classes while meeting the proportionality direction contained in the TTRA.

Minimize the harvest of high quality deer winter range.

Utilize the most economical yarding systems consistent with resource protection needs, including helicopter and long span skyline.

Minimize harvest levels adjacent to Margaret Lake.

Minimize harvest in large un-fragmented old growth blocks including the proposed Traitors Cove Habitat Conservation Area.

Table 3 displays a summary comparison of the anticipated consequences of each of the alternatives including the Selected Alternative. It is presented by resource as in Chapter 3 of the Final EIS.

Table 3
Summary Comparison of Alternatives

Activity	Units	Alternatives					
		1	2	3	4	5	6
Timber							
Units	Number	0	205	124	123	188	137*
Estimated harvest unit volume	MMBF	0	251	174	178	193	198*
Estimated right-of-way (ROW) volume	MMBF	0	16	8	9	15	8
Partial cut (shelterwood)	Acres	0	295	0	204	143	222
Clearcut harvest	Acres	0	7,937	5,734	5,716	6,281	6,346*
Total harvest	Acres	0	8,232	5,734	5,920	6,424	6,568*
Units over 100 acres	Number	0	8	9	7	4	7
Highlead harvest	MMBF	0	78.0	66.7	39.3	66.7	61.9
Running Skyline	MMBF	0	84.8	71.9	62.5	69.9	68.4
Live Skyline (Shotgun)	MMBF	0	1.6	0.5	1.3	2.4	1.2
Slackline harvest	MMBF	0	34.5	35.0	27.5	29.4	33.1
Helicopter harvest	MMBF	0	51.8	0	47.2	24.4	33.9
Estimated stumpage	\$ / MBF	0	-18.84	+16.03	- 4.63	-22.53	+17.50
Proposed Proportionality Remaining	Percent	8.86	8.82	8.87	8.91	9.05	8.95
Receipts to State of Alaska	\$M	0	5,969	5,048	4,094	4,975	5,046
Avg. annual jobs over 4 years	# of jobs	0	579	395	405	450	448
Roads & Transportation							
Specified road constr.	Miles	0	153	103	95	137	98
Road reconstruction	Miles	0	46	32	26	37	33
New Log Transfer Facilities	Each	0	1	1	1	1	1
Reconstruction of Log Transfer Facilities	Each	0	6	6	6	6	6
Margaret/Fire Cove Road connection	Miles	0	1.0	1.7	0	2.5	1.7
Margaret/Fire Cove Road connection	\$M	0	\$ 350	\$ 520	\$ 0	\$ 710	\$ 520
Shrimp/Bluff road connection*	Miles	0	12.3	0.8	8.3	12.1	0.8
*(Cost included in stumpage)							
Roads crossing Cl.I,II streams	Number	0	80	52	60	71	52
Biodiversity							
High & Moderate use subsistence (TRUCS)	Acres harvested	0	0	0	0	0	0
Unfragmented old-growth blocks >10,000 Ac.	Acres	49,505	31,184	34,716	33,241	34,584	32,997
Old Growth Acres Remaining	Acres	56,927	48,342	51,158	50,043	49,759	50,251
Wildlife - Project Area							
1997 MIS - deer	Habitat capability	1,700	1,592	1,615	1,617	1,628	1,602
1997 MIS - bear	Habitat capability	182	180	181	181	180	180
1997 MIS - marten	Habitat capability	144	127	131	133	132	130
1997 MIS - river otter	Habitat capability	66	65	65	65	65	65
1997 MIS - hairy woodpecker	Habitat capability	1,051	874	919	933	921	909
1997 MIS - Vancouver Canada goose	Habitat capability	243	219	227	225	223	222
1997 MIS - bald eagle	Habitat capability	137	135	136	136	136	136
1997 MIS - brown creeper	Habitat capability	1,338	1,131	1,192	1,205	1,197	1,178
1997 MIS - red squirrel	Habitat capability	70,793	63,214	63,635	63,750	63,627	63,540
1997 MIS - gray wolf	Habitat capability	4	4	4	4	4	4
Soils							
Very high mass movement	Acres harvested	0	216	225	203	162	266
High mass movement	Acres harvested	0	4,047	2,317	2,833	3,158	2,162
Medium mass movement	Acres harvested	0	2,380	2,025	1,414	1,809	2,162
Low mass movement	Acres harvested	0	1,533	1,174	1,356	1,251	1,301
Wetlands harvested/roaded	Acres	0	3,413	1,568	1,577	2,202	1,749
Roadless Areas							
Change in ROS class from SPNM to RM	Acres	0	15,605	7,216	12,190	11,788	9,403
Roadless areas	Acres (thousands)	61,394	43,345	52,843	48,672	47,734	51,930
Recreation places with some harvest	Number	0	12	11	10	12	11
Harvest in Orchard Lake viewshed	Acres	0	0	0	0	0	0

Note: Selected Alternative harvests approximately 1 MMBF, 1 harvest unit, and 83 acres less than Alternative 6. All other effects of the Selected Alternative are the same as Alternative 6.

Record of Decision

Environmentally Preferred Alternative

There is no single factor that can be used to determine which alternative is environmentally preferred. Maintaining the basic productivity of the land and the quality of lifestyle of the local residents are vitally important.

Based on the comparison of the alternatives shown in the Table 1 and as displayed in Chapter 3 of the Final EIS, Alternative 1, the No-Action/No Further Harvest alternative, would cause the least environmental disturbance and is therefore the environmentally preferred alternative of all the alternatives considered in detail.

All action alternatives considered in detail have similar levels of environmental effects. Of the action alternatives, the Selected Alternative, 6, would cause the least adverse environmental effects because of the measures taken to reduce conflicts with subsistence and other users. The Selected Alternative has slight to minor effects for most resources. In addition, the Selected Alternative modified the original combination of units and roads in Alternative 6 in response to public comments and subsistence testimony on the Draft EIS. This change was made to minimize the potential negative effects on rural subsistence users likely to receive the highest priority of protection in the event of an ANILCA Section 804 "Tier II" restriction.

Administrative Record

The Administrative Record for this project includes the Draft EIS, Final EIS, Tongass Land Management Plan, Alaska Regional Guide, and all material incorporated by reference including the planning record.

Mitigation

Mitigation measures are prescribed to avoid, reduce, minimize, or eliminate the adverse effects of actions. These measures were applied in the development of the project alternatives, including the Selected Alternative, and in the design of the harvest units and road corridors. The Mitigation Measures section of Chapter 2 of the Final EIS discusses the mitigation measures for all alternatives.

Mitigation measures applicable to the Selected Alternative include mitigation measures contained in the standards and guidelines of the Tongass Land Management Plan of 1979 (as amended), draft Tongass Land Management Plan Revision, Alaska Regional Guide, and applicable Forest Service Manuals and Handbooks. The Final EIS includes Harvest Unit Design Cards and Road Cards (Appendix K) which incorporated site-specific mitigation. These measures are adopted as part of this decision. Integrated silvicultural prescriptions will be developed which will further specify mitigation direction for each unit.

All practical means to avoid or minimize adverse environmental effects of the Selected Alternative have been adopted. Measures have been included to protect, enhance, and restore resources affected by timber harvest and related actions. The Forest Service has the authority through the KPC Long-term Timber Sale Contract and other permit requirements or authorities, to enforce and implement adopted mitigation measures and the monitoring necessary to ensure the effectiveness of the mitigation. The following mitigation measures are authorized for application to the North Revilla Project Area.

1. Mitigation which protects water quality, fish habitat and wetlands, includes application of the Best Management Practices (BMP's) stated in the Soil and Water Conservation Handbook (USDA FSH 2509.22). This handbook provides standard operating procedures for all stream classes. In addition, the TTRA mandates a minimum 100 foot buffer on all Class I streams and on Class II streams that flow directly into Class I streams. Of note is that the 100 foot stream buffer width mandated by TTRA is a minimum. The width of this buffer strip may be greater than 100 feet for reasons such as topography, riparian soils, a windfirm boundary, timber stand boundaries, logging system requirements, and varying stream channel locations. In addition, certain Class III streams flow directly into or have been identified as influencing Class I streams. These Class III streams have been buffered to the slope break of the channel or to a windfirm boundary to protect water quality. Split yarding or full suspension was built into the logging and transportation design process, as was partial and full suspension over wetlands soils with a higher mass movement potential. Direct in-stream impacts are minimized through road construction timing and fish passage requirements on certain Class I and II streams. Refer to Appendix K (Unit and Road Cards) for the unit specific stream buffering, suspension, passage, and timing requirements being applied. Application of BMP's and adherence to the TTRA requirements will protect water quality, fish habitat and wetlands as well as riparian habitat important to other species such as deer, bear, and furbearers.

2. While required TTRA buffers will mitigate most temperature sensitivity concerns, there still is concern about providing topographic shading to Class III streams that flow through harvest units. Units that have characteristics (south aspect, lack of immediate downstream forested stream buffers, historical and continued harvest activities, etc.) that may contribute to the temperature sensitivity of nearby streams were identified by the IDT. To mitigate this possible effect, all deciduous trees and conifer trees less than 12 inches DBH within 35 feet of Class III streams, will remain standing in these units.

3006	3021
3007	8057
3016	

3. Because most subsistence use involves harvesting fish and game, mitigation measures that protect or enhance fish and game resources will also protect and enhance subsistence activities. By placing units and roads away from beach and estuary fringe habitats, and away from salmon bearing streams, mitigation measures were built into each of the alternatives considered in the EIS.
4. Effects of timber harvest on views from anchorages and known recreational day use areas will be reduced by leaving buffers of timber along the beaches and inland lakes. The proposed visual quality objectives for this plan emphasize the protection of the visual resource as viewed from saltwater, and Hassler Island and Orchard Lake in particular will reduce the direct effects on visual quality. Stream AHMU buffers will protect fisheries habitat and sport anglers use of class I and II streams in the Project Area.
5. Unit 8014 is adjacent to the Naha LUD II Management Area. A land line survey will establish the boundary of the LUD II area before the unit is released. Sale preparation crews will attempt to ensure logging feasibility exists without incursion (anchors, tailtrees, etc.) into the LUD II Area. If incursions are needed, meetings will be held with the operator prior to initiation of harvest operations to insure protection of resource values within the LUD II area.
6. Recreation staff will assist in the general design and development of roads within recreation places.
7. Best Management Practices. Best Management Practices (BMP's) are methods, measures or practices to prevent or reduce water pollution. Their use is required by the TTRA and the Clean Water Act. They include structural and non-structural controls, operation and maintenance procedures, and scheduling and distribution of activities. Usually, BMP's are applied as a combination of practices, rather than a single practice.

An example of a BMP is: Practice 14.6- Timing Restrictions for Construction Activities. Section 4 states "Instream construction activities and the use of equipment within Class I streams will be restricted to the periods when eggs or aelvin are not in the gravels as established in the fish timing window."

Appendix C of the Proposed Revised Forest Plan (USDA Forest Service 1991a) includes a listing of recommended Best Management Practices as identified in the Soil and Water Conservation Handbook (FSH 2509.22).

Record of Decision

The effectiveness of BMP's is primarily determined by the degree to which instream water quality meets state water quality standards. Although numerical standards are included in the Alaska state water quality regulations, measurements are difficult to routinely apply to the regulation of nonpoint sediment sources on road construction and timber sale sites. The Environmental Protection Agency has determined that the reasonable implementation, application, and monitoring of BMP's achieves compliance with the intent of the Clean Water Act. Water quality studies conducted in Southeast Alaska indicate that except for short-term localized deviations from numerical standards, "BMP's are effective in maintaining sediment concentrations within state standards" (Paustian 1987).

8. Design stream crossings to provide fish passage for anadromous and resident fishes. This applies to proposed new road construction or major road reconstruction crossing Class I and II streams. (See Appendix K of the Final EIS, Unit Cards.)
9. Time road construction activities within all Class I and some Class II streamcourses to protect spawning adult fish and their eggs and fry from disturbance. This means instream road construction activities must be conducted during time periods that would not cause reductions in egg or fry survival or disturb spawning adults. Generally road construction activities adjacent to streams will be restricted to the time period May 15 to August 15.
10. Split yard or fully suspend logs on all identified streamcourses to maintain streambank stability and prevent stream sedimentation.
11. Reduce the potential for landslides by providing for full bench road construction and end haul of waste in areas with very high potential for mass movement, as well as in other areas as determined by geotechnical engineers.
12. Another means of reducing the landslide potential is to maintain partial log suspension on all slopes with high mass movement potential. Ground disturbance should not exceed 10 percent.
13. For National Forest-permitted LTF's, the grade of the working surface shall be constructed to back drain water away from the working face toward filter strips or collection/settling basins. Clean up of bark and debris will occur on a frequent basis in accordance with the necessary EPA permits.
14. Provide for habitat requirements of cavity and snag dependent Management Indicator Species (MIS) by leaving 275 snags per 100 acres averaged over each VCU. To provide for adequate distribution of snags within VCU's which have marginal numbers of snags, the following units will have small 0.1-acre (or larger) snag patches distributed throughout the unit at a rate of 0.1 acre per 10 acres of unit. The location of these snag patches will be determined during layout or sale administration, and will be designed in such a fashion as to not impose undue safety hazards on logging contractors.

Guidelines for placement of snag patches and old-growth islands include:

- a. Areas where wildlife use is concentrated (determined during recon).
- b. Selected areas should be at least 100 feet away from unit boundary (unless the unit boundary is an existing second-growth stand; then the patch or island can be placed along the unit boundary).
- c. Patches or islands can be placed along split yard sections of harvest units, particularly split yard streams.
- d. Snag patches or old-growth islands can be incorporated into stream buffers.
- e. Snag patches or old-growth islands can be placed along boundaries of muskegs.

Units which will employ these snag recruitment techniques include:

3021	6011	8022
5038	6024	9082
6008	8003	

15. Region 10 goshawk management guidelines in effect at the time of unit release will be followed. The interim guidelines issued August 18, 1992, call for no harvest within the immediate timber stand (20-30 acres) containing an identified nest tree, limited harvest (five percent per decade) within the adjacent 600 acres (post-fledging area), and mapping out approximately 6,000 acres for the foraging area.

All known goshawk nests and any new nests discovered during field recon or unit layout will be protected from timber harvest and blowdown by a minimum 660-foot buffer around the nest tree and the Region 10 Goshawk Guidelines (in effect at that time) for Goshawk Habitat Management will be followed.

16. Road construction activities that are within a half mile of bald eagle nests will usually have blasting restricted to the period of September 1 to February 28. If the nest is unoccupied, normal blasting procedures are also permitted from June 1 to August 31 if there is no direct danger to eagles, nests, eagle nest trees, or other eagle habitat elements. Blasting within 1/2 mile of an active eagle nest is only allowed if; 1) the blasting can be accomplished in accordance with the requirements of the Bald Eagle Protection Act; 2) written coordination with the U.S. Fish and Wildlife Service has occurred; 3) the results of the interagency coordination is documented. Road construction to the following harvest units may have blasting restricted to the cited time periods:

5028	5030	5031
5032	5034	6002
6008	6021	6022
6023	6025	6027
6028	6029	6032
7042	7045	7046
7047	7053	8003
8030	8044	8045
8056	8063	8064
8067	8068	8078
8080	9002	9003
9050	9068	

17. Seasonal use of the Project Area by wintering Trumpeter swans will be protected from disturbance by up to a half mile buffer zone during critical times (November 01

through March 31) of the year. Beach and estuary habitats are completely avoided by harvest units, while road incursions are minimized to the extent practicable. Overwintering areas for trumpeter swans are within one mile of the following harvest units:

3005	3006	8071
3010	3016	9053

18. The following standards and guidelines have been developed for application on all Forest Service permitted or approved activities and have been incorporated by reference into the North Revilla Final EIS from the Supplement DEIS Tongass Land Management Plan:

Provide for the protection and maintenance of whale habitats:

- a. Avoid intentional aircraft flights below 500 feet above ground level, in the known vicinity of whales on Forest Service permitted or approved activities, when weather ceilings permit.
- b. Avoid intentional approach in a vessel of 100 feet or more in length to within 1/4 mile of whales on Forest Service permitted or approved activities, when safe passage exists.
- c. Avoid intentional approach in a vessel of less than 100 feet in length to within 100 yards of whales on Forest Service permitted or approved activities, when safe passage exists.

19. Standards and guidelines direct the Forest Service to prevent and/or reduce potential harassment of sea lions and other marine mammals due to activities carried out by or under the jurisdiction of the Forest Service, and these have been incorporated by reference into the North Revilla Final EIS from the Supplement DEIS Tongass Land Management Plan. The Forest-wide standards and guidelines are as follows:

Provide for the protection and maintenance of harbor seal, Steller sea lion, and sea otter habitats.

- a. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act and the Endangered Species Act. 'Taking' of marine mammals is prohibited; taking includes harassment, pursuit, or attempting any such activity.
- b. Locate facilities and concentrated human activities requiring Forest Service approval as far from known marine mammal haulouts, rookeries and known concentration areas as practicable. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
 - * Facilities, camps, LTF's, campgrounds and other developments should be located 1 mile from known haulouts, and farther if the development is large.
 - * For aircraft flights on Forest Service approved projects, when weather ceilings permit, maintain a constant flight direction and airspeed and a minimum flight elevation of 1,000 feet (305 meters) within .5 miles (800 meters) of the haulouts.
 - * For boat traffic on Forest Service approved projects, remain at least .5 miles (800 meters) away from hauled-out harbor seals during the pupping and rearing season (15 May-1 July). Minimize disturbance of seals with pups in the water by remaining at least 330 feet (100 meters) away from parturient seals. (*Note:* These distances are derived from a study in a park where hunting is prohibited and access is restricted and where viewing seals is encouraged. These distances may be too liberal and may need to be enlarged

in situations where access and hunting are not controlled and where seals would be expected to be more reactive to boat traffic.)

- * Minimize disturbance effects of boat traffic: for molting harbor seals, remain .5 miles (800 meters) away from haulouts where seals are molting; for Steller sea lions, remain at least .5 miles (800 meters) away from haulouts and rookeries; for sea otters, avoid known feeding and resting concentration areas, especially following prolonged stormy periods when sea otters have been unable to feed.
- * Individuals associated with Forest Service permitted or approved activities will not intentionally approach within 100 yards, or otherwise intentionally disturb or displace any hauled-out marine mammal.

These guidelines will be followed, except where safe passage does not exist beyond the recommended distances.

Due to the fact that safe passage does not exist outside of the recommended TLMP Revision (1991a) guidelines the following project standards and guidelines will be implemented for Forest Service permitted and administrative activities with the following limitations for the pupping and haul out areas listed below:

- *rock at entrance to Traitors Cove* - The Margaret LTF and camp may be operational during pupping and rearing season (April 15 - July 1). The distance between the rock and shore is less than one mile with no other safe passage for boat traffic. A 330 foot boat distance from the island will be maintained to minimize disturbance, rather than the 0.5 mile distance specified by TLMP as desirable. Aircraft from Margaret Bay will achieve as high of an altitude above the rocks as weather and safe conditions permit.
- *islands and rocks in Traitors Cove salt chuck* - A shoreline buffer of 500 feet will mitigate any land based activities from disturbing haul out and pupping areas.
- *Bug and Clam Islands in Neets Bay* - The LTFs and potential campsite may be operational during the pupping and rearing season (April 15 - July 1). The safe passage corridors are approximately .25 miles from Bug Island. The distance between the rock and shore is about .5 mile with no other safe passage for boat traffic or log rafts. A 330 foot distance from the island will be maintained to minimize disturbance, rather than the 0.5 mile specified by TLMP as desirable.
- *Fire Cove and Neets Bay* - The LTF is approximately 0.5 mile from seal haul out areas. A 500 foot shoreline buffer will help reduce disturbance to the seals. The LTF has been permitted for use since 1975 with no practical alternatives found. A 330 foot distance by boats from the haul outs will be maintained to minimize disturbance, rather than the 0.5 mile distance specified by TLMP as desirable.

20. It is desirable to maintain the cedar component in stands where it naturally occurs. Because cedar tends to regenerate poorly following clearcut harvest in some stands, it is desirable to not harvest the mature cedar but to retain that vegetative structure for biodiversity and to establish cedar regeneration. Silvicultural methods such as seed tree or shelterwood harvest are appropriate to meet specific resource objectives. Areas identified to be best suited for cedar regeneration include units within the cedar or mixed conifer plant association that are proposed for helicopter yarding and having

Record of Decision

either elevations over 1,200 feet (on north and east aspects) or over 1,500 feet (on south and west aspects). Specific units or parts of units identified as meeting this criteria include:

5536	6003	9051
6011	6030	9054
6031	7009	9071
7048	7050	
7053	7552	

21. Based on preliminary recon there are some units which, because of their elevation, aspect, or indigenous plant association, may have problems establishing adequate natural regeneration. Supplemental hand planting, will be done as necessary, in the following units to insure regeneration within 5 years after timber harvest as required under NFMA.

5008	6028	9054
6031	7045	9059
7048	7050	9062
7552	9051	

22. Cultural Resources. During the summer of 1992, the proposed harvest units were surveyed for existence of cultural resources. Contracts may be modified by the Forest Service to protect cultural resources which may be discovered during the course of the Purchaser's operations. The KPC Long-Term Contract states that "in the event that any cultural resource is identified, both parties shall be notified immediately. The Purchaser shall protect all cultural resources against destruction, obliteration, removal, or damage during the operating period."

Potential effects on cultural resources can be minimized by excluding project activities from most high probability areas (exceptions are LTF's, camps, a small number of units, and access roads to these facilities). The high probability areas were all surveyed in 1992, except for exact road locations which cannot be precisely determined until after unit and road layout occurs. Types of mitigation measures include avoidance, protective enclosures, monitoring of harvest activities, restrictions on size or road location, and recovery and documentation of materials.

23. Mitigation Measures for Caves.

There are no known occurrences of carbonate rock (Berg 1988) and associated cave resources within the Project Area. It was suspected that carbonate rock may have occurred on the north side of Neets Bay. Field reconnaissance failed to identify any occurrences in this area.

The potential for identifying significant cave resources within the Project Area during implementation is extremely low. However, if cave resources are identified that may be affected by the proposed activities, the cave/karst mitigation measures in effect at that time will be applied.

Monitoring and Enforcement

A monitoring program is the process by which the Forest Service can evaluate whether or not the resource management objectives of the Final EIS have been implemented as specified and whether or not the steps identified for mitigating the environmental effects were effective. Three levels of monitoring are recognized. The first level or implementation monitoring is generally feasible at the project level. The second level or effectiveness monitoring is generally conducted on an Area-wide basis, however some project specific effectiveness monitoring is occasionally conducted to address specific needs (see Chapter 2 - Monitoring). The third level, validation monitoring, is conducted at the Regional or forest-wide level.

One major objective of this strategy is to do initial implementation and effectiveness monitoring of Forest Service BMP's. The Tongass National Forest is currently developing a BMP monitoring strategy and action plan to achieve this objective. BMP monitoring in the North Revilla Project Area will follow the general guidelines outlined in this action plan. BMP's to be monitored at a specific site are determined through a review of unit/road cards, fish habitat reports, and other appropriate documentation.

Applicable monitoring requirements are specified at the end of Chapter 2 of the Final EIS. For each monitoring item, an objective, desired result, method of measurement, and evaluation (or threshold and corrective action) are identified, along with identification of the responsible staff. Monitoring activities may reveal results that deviate from planned effects, in which case corrective actions are prescribed.

The Ketchikan Area Forest Supervisor is responsible for ensuring that project implementation, mitigation, monitoring, and enforcement is accomplished as specified.

Findings Required By Law

National Forest Management Act

The National Forest Management Act (NFMA) requires specific determinations in this Record of Decision including consistency with existing Forest Plans and Regional Guides. It also requires a determination of clearcutting as the optimal method of harvesting and specific authorization of clearcuts over 100 acres in size.

Tongass Land Management Plan and Alaska Regional Guide

This decision is consistent with the Alaska Regional Guide and the Tongass Land Management Plan of 1979 (as amended). I have reviewed the management direction, standards and guidelines, and the schedule of activities for the VCUs included in the Selected Alternative, and find the Selected Alternative to be consistent with these

elements. The areas of undisturbed old-growth wildlife habitat maintained in this alternative exceed the standards for retention established in the TLMP.

Although not required, the activities authorized in this decision are consistent to the extent practicable with the proposed standards and guidelines and management prescriptions of the Supplement to the Draft EIS for the TLMP Revision.

Clearcutting as the Optimal Method of Harvesting

The Alaska Regional Guide established silvicultural and management standards for the western hemlock-Sitka spruce forest type (Alaska Regional Guide, page 3-18). Even-aged management in the form of clearcutting is, according to the Regional Guide, to be used where the management objective is to meet timber production objectives established in the Forest Plan, where there is a risk of dwarf mistletoe infestation, and where risk of windthrow is determined to be high. Most of the harvest units being proposed in the Selected Alternative are within LUD III and LUD IV lands and have a high risk of windthrow. Most units in the Selected Alternative, except those discussed in the previous Decision section, are prescribed for clearcut harvest. Clearcutting of the proposed harvest units will meet the objective of maintaining fast-growing, mistletoe-free stands of mixed species and is the optimum method of harvesting, considering the following factors referenced in the Alaska Regional Guide:

1. The thin bark and shallow roots of hemlock and spruce make them particularly susceptible to logging injury, which leads to decay. Losses from decay fungi are high, especially in the old-growth forests of Alaska. Conversion from old- to young- growth by clearcutting has the greatest potential for reducing decay.
2. Hemlock dwarf mistletoe, *Arcanthobium tsugense*, a common disease of western hemlock, can best be controlled by clearcutting. Elimination of residual overstory trees infected with dwarf mistletoe prevents infestation of western hemlock in the new stand.
3. Exposure to the sun raises soil temperature, which speeds decomposition, thereby improving the productivity of most sites.
4. Clearcutting favors regeneration of Sitka spruce by destroying advance hemlock regeneration and by creating more favorable conditions for post-logging reproduction of spruce.
5. Risk of blowdown in residual stands is eliminated. The chance of blowdown along cutting boundaries is increased but can be reduced through proper design of cutting units.
6. Natural seed fall is generally adequate for regeneration and most young stands are dense.
7. Logging costs are lower than with other systems.

On June 4, 1992, F. Dale Robertson, Chief of the Forest Service, issued a letter to Regional Foresters and Station Directors on the subject of Ecosystem Management of the National Forests and Grasslands. As part of this letter, an attachment was included regarding clearcutting on National Forest System lands and the use of other

silvicultural systems. Specific items are listed which describe circumstances where clearcutting is appropriate. Within the Final EIS for North Revilla, a discussion of alternatives considered is displayed. Where clearcutting is specified as the preferred regeneration harvest, documentation is provided for the reasons clearcutting is appropriate, and reference is made to the appropriate items in the Chief's letter which apply. Therefore, considering the above factors, clearcutting, as applied in the Selected Alternative, is appropriate and consistent with the criteria in the Chief's letter.

Clearcuts Over 100 Acres in Size

There are a total of seven units or combinations of units which exceed 100 acres. Appendix B of the Final EIS includes a table that displays these units or combinations of units and lists the reasons for exceeding 100 acres. These units were displayed for public review for more than 45 days after release of the Draft EIS in which the public could comment on these units over 100 acres. This 45-day public comment period meets the requirements of the Alaska Regional Guide for approval of units over 100 acres. Based on public review and the statements of reasons listed for the units greater than 100 acres in Appendix B of the Final EIS, these units are authorized for harvest as designed.

Tongass Timber Reform Act

Harvest units were designed and will be located to maintain a minimum 100-foot buffer zone for all Class I streams and Class II streams which flow directly into Class I streams as required in Section 103 of the TTRA. As discussed previously in the Mitigation section of this ROD, the actual widths of these buffer strips will often be greater than the 100-foot minimum. The design and implementation direction for the Selected Alternative incorporate BMP's for protection of all stream classes.

In accordance with Section 301(c) of TTRA, which modified the KPC Long-term Timber Sale Contract, the North Revilla Project was planned, management requirements were applied, and environmental analysis procedures were followed consistent with procedures for independent National Forest timber sales. Analysis of the proportion of Volume Classes 6 and 7 planned for harvest was also performed. It was determined that upon completion of the Selected Alternative's harvest, proportionality consistent with the requirements of the TTRA for Management Area K32 will result. Refer to the preceding section, "Decision", item 10, for an analysis of the proportion of Volume Classes 6 and 7 planned for harvest with the Selected Alternative.

Endangered Species Act

Actions authorized in the Selected Alternative are not anticipated to have a direct, indirect, or cumulative affect on any threatened, endangered or sensitive species in the North Revilla Project Area. A complete biological assessment is included in Appendix D of the Final EIS. I have determined that this action will not have any adverse impacts on any threatened or endangered species.

Bald Eagle Protection Act

Management activities within 330 feet of an eagle nest site are restricted by a Interagency Agreement between the Forest Service and the U. S. Fish and Wildlife Service to facilitate compliance with the Bald Eagle Protection Act. The Selected Alternative includes road construction within 330 feet of bald eagle nest #42 on Hassler Island. A variance from the Interagency Agreement has been requested, and was approved by the Fish and Wildlife Service on this eagle nest tree.

Clean Water Act

The design of harvest units and roads for the Selected Alternative were guided by standards, guidelines, and direction contained in the current TLMP, the TLMP Draft Revision, Alaska Regional Guide, and applicable Forest Service manuals and handbooks. The Harvest Unit Design Cards and Road Design Cards (Appendix K) contain specific details on practices prescribed to prevent or reduce non-point sediment sources. Reasonable implementation with site-specific application and monitoring of approved BMP's is expected to comply with applicable State Water Quality Standards Regulations. These regulations provide for variances from anti-degradation requirements and water quality criteria. The harvest and road-building operators will be responsible for compliance, including obtaining any variance required by the State, and will be monitored for compliance by the Forest Service. The Forest Service expects North Revilla Project Area activities will fully qualify for any variance required by the State, according to the criteria in 18 AAC 70.015.

The Environmental Protection Agency has established normal conditions including monitoring as a part of the permitting process for log transfer facilities.

National Historic Preservation Act

Cultural resource surveys of various intensities have been conducted in the Project Area. The State Historical Preservation Officer has been consulted, and the provisions of 36 CFR part 800 are being complied with. The KPC contract contains enforceable measures for protecting any undiscovered cultural resource that might be encountered during sale operations. No ground-disturbing activities associated with this action will occur before a cultural resource clearance for that specific area has been given. I have determined, consistent with the Chief's direction on cultural resources, that there will be no significant effects on cultural resources.

ANILCA Section 810**Subsistence Evaluation and Findings**

A subsistence evaluation was conducted for the six alternatives considered in detail for the proposed action in accordance with ANILCA Section 810. Open houses followed by ANILCA Section 810 hearings were held in Ketchikan and Saxman. The results from the subsistence hearings were incorporated into the development of the Selected Alternative.

The evaluation of comments from the public, subsistence hearing testimony, and additional analysis indicates that the potential foreseeable effects from the action alternatives in the North Revilla Project Area do not indicate a significant possibility of a significant restriction of subsistence uses for bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods such as berries and roots.

There is, however, a significant possibility of a significant restriction of subsistence use of deer and marten in the Project Area in the future. Although the analysis in Chapter 3 of the Final EIS indicates that no such restriction of subsistence use in the Project Area will occur at the present time or foreseeable future; increased demand, and cumulative effects of future actions may at some point result in a significant restriction of subsistence use of deer and marten in the Project Area.

Based on a review of the subsistence hearing testimony and the analysis conducted in the Final EIS, it is apparent that all of the action alternatives, and no action alternatives, involve some potential to restrict subsistence uses. There is no alternative that would meet KPC contract timber volume requirements and TLMP direction and yet avoid a significant possibility of a subsistence restriction somewhere in the Forest.

Therefore, based on the analysis of the information presented in the Final EIS, it is my determination that these actions are necessary, consistent with sound management of public lands.

The amount of public land involved to implement the Selected Alternative is (considering sound multiple-use management of public lands) the minimum necessary. Conversion of old-growth forest into second-growth forest affects habitat capability for deer and other old-growth dependent species wherever it occurs on the Tongass National Forest, and habitat is used forest-wide by such species.

The entire Tongass National Forest is used by one or more rural communities for subsistence purposes for deer hunting (TRUCS). The areas of most subsistence use are the areas adjacent to existing road systems, beaches, and the areas in close proximity to the communities. Much effort was taken to protect the highest value subsistence areas. For example, the beach fringe is one of the highest use subsistence areas, and one percent or less will be impacted by the Selected Alternative.

It is not possible to lessen harvest in one area and concentrate it in another without changing the impact on one or more rural communities' important subsistence use areas. In addition, harvestable populations of game species could not be maintained in a natural distribution across the Forest if harvest were concentrated in specific areas. A well distributed population of species is also required by Forest Service regulations implementing the National Forest Management Act. Therefore, I conclude that the acres scheduled for harvest in the Selected Alternative meet sound multiple-use management of public lands and involve the minimum amount of public land used for subsistence. Furthermore, the Selected Alternative resolves resource concerns reflected in the public issues associated with this EIS.

Impacts on subsistence have been minimized through the development of the individual harvest units and road corridors, and through the formulation of the alternatives. Mitigation measures applicable to all resources including subsistence are described in this ROD. It is my determination that reasonable measures to minimize impacts on subsistence have been adopted to the maximum extent practicable while still meeting the purpose and need for this project.

The Selected Alternative reflects special efforts by the Forest Service to minimize the effects on subsistence resources used by those rural communities that would be most likely to receive the highest priority for game in the event of an ANILCA Section 804 "Tier II" restriction.

Executive Orders

Executive Order 11988

Executive Order 11988 directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. The numerous streams in the North Revilla Project Area makes it impossible to avoid all floodplains during timber harvest and road construction. The design of the proposed developments and the application of Best Management Practices combine to minimize adverse impacts on floodplains.

Executive Order 11990

Executive Order 11990 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification

of wetlands. The Selected Alternative avoids most identified wetlands; however, many small wetlands or muskegs occur as inclusions within forested areas. These areas may be altered by timber harvest or road construction. Techniques and practices required by the Forest Service serve to maintain the wetland attributes including values and functions. It is estimated there will be only minimal loss of wetlands with any of the alternatives. Soil moisture regimes and vegetation on some wetlands may be altered in some cases; however, these altered acres would still be classified as wetlands and function as wetlands in the ecosystem.

Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (CZMA), while specifically excluding Federal lands from the coastal zone, requires that a Federal agency's activities be consistent with a state's coastal management program to the maximum extent practicable when that agency's activities directly affect the coastal zone. Forest Service requirements for consistency are detailed in a Memorandum of Understanding between the State of Alaska and the Regional Forester, dated October 8, 1981. Standards against which the consistency evaluation take place are: Alaska Statute Title 46, Water, Air, Energy, and Environmental Conservation; Alaska Forest Practices Act of 1990; and the District Coastal Management Program.

The standards and guidelines for timber management activities in the North Revilla Project Area meet or exceed those indicated in the Alaska Forest Practices Act and the Alaska Coastal Management Program (ACMP).

I have determined that the proposed activities are consistent with the Alaska Coastal Management Program to the maximum extent practicable. In accordance with the Memorandum of Understanding and Alaska Statutes, the Office of Governmental Coordination will do a consistency review of the Selected Alternative, and will concur with, or object to, this determination.

Federal and State Permits

Federal and State permits necessary to implement the authorized activities are listed at the end of Chapter 1 of the Final EIS.

Implementation Process

Implementation of this decision may occur no sooner than 45 days after the date of publication of the Notice of Availability of the Final EIS in the *Federal Register*, or 45 days following publication of the legal notice of the decision in the *Ketchikan Daily News*, published in Ketchikan, Alaska, whichever is later.

This project will be implemented in accordance with Forest Service Manual and Handbook direction for Timber Sale Project Implementation in FSM 2431.3 and FSH 2409.24. This direction provides a bridge between project planning and implementation and will ensure execution of the actions, environmental standards, and mitigations approved by this decision, and compliance with the TTRA and other laws.

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Implementation of all activities authorized by this Record of Decision will be monitored to ensure that they are carried out as planned and described in the Final EIS and ROD and Unit Design and Road Cards unless modified consistent with direction in the Forest Service Manual.

Appendix K of the Final EIS contains the Harvest Unit Design Cards and the Road Design Cards. These cards are an integral part of this decision because they document the specific resource concerns, management objectives, and mitigation measures to govern the layout of the harvest units and construction of roads. These cards will be used during the implementation process to assure that all aspects of the project are implemented within applicable standards and guidelines and that resource impacts will not be greater than those described in the EIS. Similar cards will be used to document any changes to the planned layout, as the actual layout and harvest of the units occurs with project implementation. The implementation record for this project will display each harvest unit, transportation facility, and other project components as actually implemented; any proposed changes to the design, location, standards, and guidelines, or other mitigation measures for the project; and the decisions on the proposed changes.

Process for Change During Implementation

Any proposed changes to the authorized project actions will be fully subject to the requirements of the National Environmental Policy Act (NEPA), the National Forest Management Act of 1976 (NFMA), Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), the Tongass Timber Reform Act (TTRA), the Coastal Zone Management Act (CZMA), and other laws concerning proposed actions.

No changes requiring modification of the KPC Long-term Timber Sale Contract or other existing contracts or permits will be approved without the signature of the contracting or permitting officer or his/her successor or superior.

In determining whether and what kind of further NEPA action is required, the Forest Supervisor will consider the criteria for whether to supplement an existing Environmental Impact Statement (EIS) in 40 CFR 1502.9(c), and in particular, whether the proposed change is a substantial change to the intent of the Selected Alternative as planned and already approved, and whether the change is relevant to environmental concerns. The Forest Supervisor will consider whether an Environmental Assessment (EA) should be prepared to determine whether a supplement to the existing EIS is required, or whether the change is categorically excluded from preparation of an EIS or EA on the basis of the criteria in FSH 1909.15. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. Cumulative impacts will be considered.

Some minor changes are expected to harvest units, transportation facilities, or other project components due to unknown physical or biological conditions. Many of these minor changes may be categorically excluded from documentation in an EA or EIS

and will not present sufficient potential impacts to require any specific documentation or other action to comply with other laws. Some minor changes may still require appropriate scoping, environmental analysis, documentation in a Decision Memo, and public notice to comply with FSH 1909.15.

Right To Appeal

This decision is subject to administrative appeal. Organizations or members of the general public may appeal this decision according to Title 36 Code of Federal Regulations (CFR) Part 217. The appeal must be filed within 45 days of the date that legal notification of this decision is published in the Ketchikan Daily News, the official newspaper of record. The Notice of Appeal must be filed in duplicate with:

Michael A. Barton, Regional Forester
Forest Service
U.S. Department of Agriculture
P.O. Box 21628
Juneau, Ak. 99802-1628

It is the responsibility of those who appeal a decision to provide the Regional Forester sufficient narrative evidence and argument to show why the decision by the Forest Supervisor should be changed or reversed. At a minimum, the written notice of appeal must:

1. State that the document is a Notice of Appeal filed pursuant to 36 CFR part 217;
2. List the name, address, and telephone number of appellant;
3. Identify the decision about which the requester objects;
4. Identify the document in which the decision is contained by title and subject, date of the decision, and name and title of the Deciding Officer;
5. Identify specifically that portion of the decision document to which the requester objects;
6. State the reasons for objection, including issues of fact, law, regulations, or policy and, if applicable, specifically how the decision violates the law, regulation, or policy; and
7. Identify the specific change(s) in the decision that the appellant seeks.


The first timber offering is planned to be made available as part of the current timber supply in October 1993.

Contact Person

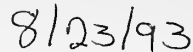
For additional information concerning the specific activities authorized with this decision contact the Ketchikan Area IDT Planning Staff Officer.

David Arrasmith
IDT Planning Staff Officer
Ketchikan Area, Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

(907) 225-3101



DAVID D. RITTENHOUSE
Forest Supervisor, Ketchikan Area
Tongass National Forest



Date

Appendix 1

Unit and Site Data Listing

RECORD OF DECISION
FOR
NORTH REVILLA EIS

UNIT & SITE DATA LISTING

The following section describes the information and codes displayed in the ROD Unit Listing. The list of units, plus other pertinent data has been summarized by harvest unit and setting. Some of the data presented represents averages from larger mapping units. The IDT utilized this information, plus aerial photos, detailed topography maps, and site visits as part of the North Revilla EIS analysis.

RECORD OF DECISION - UNIT LISTING																	PAGE _ OF _	

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11<Aspect is the predominant direction the slope faces (North, East, South or West)

12<Visual Quality Objective based on the proposed Alternative P LUD's and the distance zone (foreground, middle ground, background)

13<Slope Class based on soils inventory. Code 1 = 0-35%; Code 2 = 36-55%; Code 3 = 56-75%; Code 4 = >75%
Note: Reliability is limited as the slope is an average for a large soil mapping unit. The setting (avg size 18 acres) may or may not reflect the average.

14<Minimum Elevation - The lowest elevation recorded for the setting rounded to the nearest 100 feet. 1 = 100'; 8 = 800'; 15 = 1500'

15<Maximum Elevation - The highest elevation recorded for the setting rounded to the nearest 100 feet. (see above)

16<Wind Throw - The risk of windthrow based on topographic and species factors (H = High Risk, M = Low Risk, L = Low Risk) Harris, PNW-GTR-244

17<Soil Mapping Unit - A setting may contain one or more mapped soil types. The predominant soil type is listed. For interpretation of soil mapping unit codes see R-10 Soil & Water Handbook.

18<Ecological Codes - See Ketchikan Area Plant Associations Guide (Dimeo) for interpretations.

19<Mass Movement Index - MMI 1 = Low Hazard; MMI 2 = Moderate Hazard; MMI 3 = High Hazard; MMI 4 = Very High Hazard; Note listed for item 13 applies to MMI codes as well.

20<Percent Mcgilvery Soils. Used to indicate potential regeneration problems. Code 1 = 0-9%; 2 = 10-19%; 3 = 20-29%; 4 = 30-39% and 5 = 40-100% Mcgilvery Soils.

21<Site Index - Measure of productivity and is based on a 50 year period. ie a site with an index of 85 will produce trees 85 feet tall in 50 years.

22<Wetland Habitat Codes - Indicates the type of wetland or non wetland habitat. Used as an indicator of logging system requirements.

23<Riparian Habitats - Based on soil mapping units not AHMU prescriptions. Used to indicate potential regeneration problems.

24<Logging Method - Type of logging system recommended to meet all resource concerns including suspension requirements. Codes include HL = Highlead RS = Running Skyline; LS = Live Skyline (shotgun or flyer); SL = Slackline (live skyline w/haulback); SS = Standing Skyline; MS = Multi-span Skyline; HE = Helicopter; CD = Cold Deck and Swing operation. A-Frame logging is primarily used for salvage logging due to the 500' beach fringe and 1000' estuary buffer being applied in this EIS.

25<Harvest Method - CC = clearcut; SW = Two step shelterwood that totally exclude's Alaska yellowcedar; SMD = Two Step shelterwood that harvests Alaska yellowcedar larger than 12-16" DBH (depending upon the site) and leaves the Alaska yellowcedar smaller than the specified diameter for seed production and shelter.

26<Proposed Future Management - Codes include the following:

FH = Final Harvest (Overstory Removal after advance regeneration established)

RS = Regeneration Survey 3rd & 5th years after harvest

PB = Prescribed Burn

Plant (SS, RC, YC) = Plant Sitka Spruce, Western Redcedar, or Alaska yellowcedar

SS = Survival Surveys (staked tree surveys and regeneration surveys) in plantations

TWPCT = Timber precommercial thinning 12'X12' at age 15-20 years recommended

WLPCT = Wildlife precommercial thinning 12'X12' to 16'X16' spacing recommended between ages of 12 and 20. On an average site the onset of crown closure and reduced radial increment occurs at age 18. To avoid losing desirable understory forage thinning should occur before or shortly after the onset of canopy closure. Variation due to site quality needs to be accounted for.

CT = Commercial Thinning

CC = Clearcut

SW = Shelterwood

North Revilla ROD - Appendix 1

NORTH REVILLA - RECORD OF DECISION - UNIT LISTING

NORTH REVILLA - RECORD OF DECISION - UNIT LISTING																																PAGE 2 OF 17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
H	AU	RN	VI	EI	ST	T#	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V

7330 3020	3 ML	1	19	0	0	0	0	0	0	0	20	622.00	WEST	MM	4	8	10 H	528F	WHS	3	4	85 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC		
7330 3020	3 ML	7	10	0	0	0	0	0	0	0	17	488.00	WEST	MM	4	4	8 H	528F	WHS	3	4	85 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, WLPCT, CC	
7330 3020	3 TP	9	20	0	0	0	0	0	0	0	29	851.00	WEST	MM	4	6	10 H	528F	WHS	3	4	85 FNW	N	SL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC	
3020		17	49	0	0	0	0	0	0	0	66	1,961.00																												
7330 3021	3 ML	0	23	0	0	0	0	0	0	0	23	722.00	SOUTH	PR	3	2	5 H	528E	WHS	3	4	85 FNW	N	SL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, WLPCT, CC	
7330 3021	3 ML	0	33	0	0	0	0	0	0	0	33	1,035.00	SOUTH	MM	3	2	4 H	528E	WHS	3	4	85 FNW	N	SL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, WLPCT, CC	
7330 3021	3 ML	0	3	7	0	0	0	0	0	0	10	382.00	SOUTH	MM	3	2	2 H	528E	WHS	3	4	85 FNW	N	HL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, WLPCT, CC
3021		0	59	7	0	0	0	0	0	0	66	2,139.00																												
7330 3023	3 ML	0	50	0	0	0	0	0	0	0	50	1,568.00	SOUTH	PR	3	3	11 H	528F	WHS	3	4	85 FNW	N	HE	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC	
7330 3024	3 TP	12	12	0	0	0	0	0	0	0	24	675.00	WEST	MM	3	8	12 M	75E	WHS	2	3	88 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC
7330 3024	3 TP	16	2	0	0	0	0	0	0	0	18	462.00	WEST	MM	2	12	15 M	25	CMW	1	1	80 SEC	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC
7330 3024	3 TP	29	2	0	0	0	0	0	0	0	31	787.00	WEST	MM	2	11	15 M	30	WDC	2	1	89 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC
3024		57	16	0	0	0	0	0	0	0	73	1,924.00																												
7330 3025	3 TP	7	24	0	0	0	0	0	0	0	31	927.00	NORTH	MM	2	9	15 H	11D	WHM	2	1	100 FNW	N	HE	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC	
7330 3025	3 TP	9	7	0	0	0	0	0	0	0	16	444.00	NORTH	MO	2	3	4 H	11D	WHM	2	1	100 FNW	N	HL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC
7330 3025	3 SP	4	0	0	0	0	0	0	0	0	4	100.00	NORTH	MO	2	5	5 H	11D	WHM	2	1	100 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC
7330 3025	3 SP	10	6	0	0	0	0	0	0	0	16	438.00	NORTH	MO	2	4	5 H	11D	WHM	2	2	97 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC
7330 3025	3 TP	0	5	0	0	0	0	0	0	0	5	157.00	NORTH	MO	4	7	7 H	528F	WHS	3	4	85 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC
7330 3025	3 SP	0	12	0	0	0	0	0	0	0	12	376.00	NORTH	MM	2	5	7 H	21A	NFS	1	1	83 MP	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, CC
3025		30	54	0	0	0	0	0	0	0	84	2,442.00																												
7330 3026	3 ML	7	38	8	0	0	0	0	0	0	53	1,694.00	NORTH	MO	3	10	20 H	528F	WHS	3	2	97 FNW	N	HE	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC	
7330 3026	3 TP	0	11	0	0	0	0	0	0	0	11	345.00	NORTH	MO	4	6	7 H	528F	WHS	3	4	85 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC
7330 3026	3 TP	0	27	0	0	0	0	0	0	0	27	847.00	NORTH	MM	3	5	8 H	11D	WHM	2	1	100 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC
3026		7	76	8	0	0	0	0	0	0	91	2,886.00																												
7400 4006	3 ML	19	0	3	0	0	0	0	0	0	22	597.00	SOUTH	PR	4	20	30 H	29EF	WHS	1	4	64 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, CC
7400 4006	3 ML	34	0	2	0	0	0	0	0	0	36	932.00	SOUTH	PR	3	15	30 H	29EF	WHS	1	2	64 FNW	N	RS	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, R&W, CC
4006		53	0	5	0	0	0	0	0	0	58	1,529.00																												
7350 5003	3 ML	5	0	8	0	0	0	0	0	0	13	452.00	NORTH	PR	2	8	10 H	528D	WHS	2	4	85 FNW	N	HL	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	RS, TMPCT, CC

North Revilla ROD - Appendix 1

AU	RN	VI	EI	ST	T#	VCU	L RL L EU D VD	V L O L C4	V L O L C5	V L O L C6	V L O L C7	TOTAL ACRES	VOLUME MMBF	ASPECT	VQO E	P MIN ELEV	S MAX NO DW	T WH IR	ECO	M C I G	M C I G	R PH AA RB	M LE OT GH	HM AE RT VH	PROPOSED FUTURE MANAGEMENT	
7350	5032	3 ML	0	12	0	0	0	0	0	0	0	12	376.00	EAST	PR 2	3	5 H	528D	WHS	2	4	88 FNW	N RS	CC	CC	RS, TMPCT, CC
7350	5032	3 ML	0	9	0	0	0	0	0	0	0	9	283.00	EAST	PR 2	6	6 H	540	WHS	2	4	90 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5032	3 ML	0	5	0	0	0	0	0	0	0	5	157.00	EAST	PR 2	6	6 H	540	WHS	2	4	90 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5032	3 ML	0	8	0	0	0	0	0	0	0	8	251.00	EAST	PR 2	4	4 H	528D	WHS	2	4	85 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5032	3 ML	0	6	0	0	0	0	0	0	0	6	188.00	EAST	PR 1	9	9 H	19C	WHS	2	1	65 FW	N HL	CC	CC	RS, TMPCT, CC
7350	5032	3 SV	0	9	0	0	0	0	0	0	0	9	283.00	EAST	PR 3	7	9 H	18E	CCD	4	1	80 FW	N HL	CC	CC	RS, CC
7350	5032	3 ML	0	3	0	0	0	0	0	0	0	3	95.00	EAST	PR 3	10	10 H	18E	CCD	4	1	80 FW	N HL	CC	CC	RS, CC
7350	5032	3 ML	0	5	0	0	0	0	0	0	0	5	157.00	EAST	PR 2	3	3 H	528D	WHS	2	4	85 FNW	N HL	CC	CC	RS, TMPCT, CC
5032			0	57	0	0	0	0	0	0	0	57	1,790.00													
7350	5034	3 ML	0	21	0	0	0	0	0	0	0	21	659.00	SOUTH	PR 2	5	8 H	540	WHS	2	4	85 FNW	N RS	CC	CC	RS, CC
7350	5035	3 ML	24	12	0	0	0	0	0	0	0	36	976.00	EAST	PR 3	15	30 H	528E	WHS	3	4	75 FNW	N HE	CC	CC	RS, R&W, CC
7350	5037	3 ML	5	40	0	0	0	0	0	0	0	45	1,378.00	NORTH	R 4	15	20 H	29EF	WHS	1	5	65 FNW	N HE	CC	CC	RS, CC
7350	5038	3 ML	11	50	0	0	0	0	0	0	0	61	1,843.00	NORTH	PR 3	4	9 H	29EF	WHS	1	4	70 FNW	N HE	CC	CC	RS, R&W, CC
7350	5501	3 SV	0	8	0	0	0	0	0	0	0	8	251.00	NORTH	R 2	6	6 H	33D	CCS	3	4	75 FIW	N RS	CC	CC	RS, TMPCT, CC
7350	5501	3 SV	0	18	0	0	0	0	0	0	0	18	564.00	NORTH	R 2	3	5 H	33D	CCS	3	4	77 FIW	N RS	CC	CC	RS, TMPCT, CC
5501			0	26	0	0	0	0	0	0	0	26	815.00													
7350	5505	3 ML	0	4	0	0	0	0	0	0	0	4	125.00	NORTH	PR 2	9	9 H	528D	WHS	2	4	85 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5505	3 ML	0	30	0	0	0	0	0	0	0	30	1,002.00	NORTH	PR 2	9	9 H	528D	WHS	2	4	85 FNW	N HL	CC	CC	RS, TMPCT, CC
5505			0	34	0	0	0	0	0	0	0	34	1,127.00													
7350	5525	3 ML	8	0	0	0	0	0	0	0	0	8	200.00	NORTH	MO 2	4	7 H	528D	WHS	2	4	85 FNW	N RS	CC	CC	RS, TMPCT, CC
7350	5525	3 SV	4	0	0	0	0	0	0	0	0	4	100.00	WEST	MM 2	2	4 H	29D	CCS	1	2	44 FNW	N HL	CC	CC	RS, CC
7350	5525	3 SV	0	10	0	0	0	0	0	0	0	10	314.00	NORTH	R 2	6	7 H	51C	WHS	1	1	63 FW	N HL	CC	CC	RS, TMPCT, CC
7350	5525	3 SV	11	0	0	0	0	0	0	0	0	11	303.00	NORTH	R 2	6	7 H	51C	WHS	1	2	70 FW	N HL	CC	CC	RS, CC
7350	5525	3 SV	0	7	0	0	0	0	0	0	0	7	220.00	NORTH	R 2	11	11 H	19D	WHS	2	1	65 FW	N HL	CC	CC	RS, TMPCT, CC
5525			23	17	0	0	0	0	0	0	0	40	1,137.00													
7350	5529	3 TP	7	0	0	0	0	0	0	0	0	7	175.00	EAST	MO 2	3	3 H	540	WHS	2	4	90 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5529	3 SV	13	1	0	0	0	0	0	0	0	14	356.00	EAST	MO 2	2	4 H	540	WHS	2	4	82 FNW	N HL	CC	CC	RS, TMPCT, CC
7350	5529	3 TP	0	8	0	0	0	0	0	0	0	8	251.00	EAST	MO 3	6	6 H	19E	WHS	3	2	76 FW	N HL	CC	CC	RS, CC
7350	5529	3 TP	1	2	0	0	0	0	0	0	0	3	88.00	EAST	MO 3	6	6 H	19E	WHS	3	2	76 FW	N HL	CC	CC	RS, CC
7350	5529	3 SV	10	0	0	0	0	0	0	0	0	10	250.00	SOUTH	MO 2	3	4 H	33D	CCS	3	4	75 FIW	N HL	CC	CC	RS, WLPCT, CC
5529			31	11	0	0	0	0	0	0	0	42	1,120.00													

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H	AU	RN	VI	EI	ST	T#	VCU	L RL	U EU	D VD	V O	V L	V O	V L	V O	V L	C4	C5	C6	C7	TOTAL	VOLUME	MMBF	ASPECT	V00	P	S	L	O	P	MIN	MAX	NO	WH	IR	T	SMU	ECO	M I	M C	M G	I G	EX	HAB	RB	GH	VH	RT	AE	HM	M	I	R	PH	LE	OT	AA	WET	TE	ID	SN	I	SN	SEC	N	HE	SW	FH,RS,R&W,2-SW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
7350	5536							3	ML	14	0	0	0	0	0	0	0	0	0	0	14	385.00		NORTH	PR	2	15	30	M	25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

VVCU	T#	ST	EI	RN	L RL U EU D VD	V O L C4	V O L C5	V O L C6	V O L C7	TOTAL ACRES	VOLUME MMBF	ASPECT	VQO	P	MIN ELEV	MAX NO DW	T WH IR	M C I G	M C I G	SN ID TE EX	I WET HAB	R PH AA RB	M LE OT GH	HM AE RT VH	PROPOSED FUTURE MANAGEMENT		
																									SMU	CODE	ECO
7360	6021	4	ML	29	7	0	0	0	0	36	944.00	WEST	MO	1	2	4	H	24AC	CMC	1	1	60	SE	N	SL	CC	RS, R&W, CC
7360	6022	4	ML	20	2	0	0	0	0	22	511.00	WEST	PR	1	3	4	H	24AC	CMC	1	1	60	SE	N	HL	CC	RS, CC
7360	6023	4	ML	2	0	0	0	0	0	2	45.00	EAST	PR	1	2	2	H	24AC	CMC	1	1	60	SE	N	HL	CC	RS, CC
7360	6023	4	ML	8	0	0	0	0	0	8	182.00	EAST	PR	1	2	2	H	24AC	CMC	1	1	60	SE	N	HL	CC	RS, CC
	6023			10	0	0	0	0	0	10	227.00																
7360	6024	4	TP	9	5	0	0	0	0	14	382.00	NORTH	PR	2	4	5	H	18D	CCD	3	1	85	FW	N	HL	CC	RS, CC
7360	6024	4	TP	6	10	0	0	0	0	16	463.00	NORTH	PR	2	3	5	H	18D	CCD	3	1	79	FW	N	HL	CC	RS, CC
7360	6024	4	TP	1	12	0	0	0	0	13	402.00	NORTH	PR	3	6	7	H	1E	WDC	3	1	100	FNW	N	RS	CC	RS, TMPCT, CC
7360	6024	4	TP	11	0	0	0	0	0	11	275.00	NORTH	PR	1	4	4	H	24AC	CMC	1	1	68	SE	N	HL	CC	RS, CC
7360	6024	4	TP	10	1	0	0	0	0	11	282.00	NORTH	PR	1	3	4	H	24AC	CMC	1	1	60	SE	N	HL	CC	RS, CC
7360	6024	4	TP	6	0	0	0	0	0	6	150.00	NORTH	PR	1	4	4	H	24AC	CMC	1	1	60	SE	N	HL	CC	RS, CC
	6024			43	28	0	0	0	0	71	1,954.00																
7360	6025	4	ML	8	0	0	0	0	0	8	200.00	SOUTH	PR	2	3	3	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6025	4	ML	1	6	0	0	0	0	7	213.00	SOUTH	PR	3	4	4	H	4E	CCD	3	3	68	EW	N	HL	CC	RS, CC
7360	6025	4	ML	10	0	0	0	0	0	10	250.00	SOUTH	PR	2	4	5	H	3E	WDC	3	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6025	4	ML	14	0	0	0	0	0	14	350.00	SOUTH	PR	2	3	6	H	3E	WDC	3	1	100	FNW	N	SL	CC	RS, WLPCT, CC
7360	6025	4	ML	6	0	0	0	0	0	6	150.00	SOUTH	PR	3	4	4	H	3E	WDC	3	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6025	4	ML	7	0	0	0	0	0	7	175.00	SOUTH	PR	2	3	3	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
	6025			46	6	0	0	0	0	52	1,338.00																
7360	6027	4	ML	0	14	0	0	0	0	14	439.00	SOUTH	PR	2	2	3	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6027	4	ML	0	5	0	0	0	0	5	157.00	SOUTH	PR	2	2	2	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6027	4	ML	0	6	0	0	0	0	6	188.00	SOUTH	PR	2	2	2	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
7360	6027	4	ML	0	12	0	0	0	0	12	376.00	SOUTH	PR	1	1	2	H	24AC	CMC	1	1	76	SE	N	HL	CC	RS, CC
	6027			0	37	0	0	0	0	37	1,160.00																
7360	6028	4	ML	14	12	0	0	0	0	26	726.00	SOUTH	PR	3	3	4	H	6	CCS	2	2	96	FNW	N	HL	CC	PB, PLANT(RC&YC), SS, CC
7360	6028	4	ML	16	6	0	0	0	0	22	587.00	SOUTH	PR	2	2	3	H	3D	WDC	2	1	100	FNW	N	HL	CC	RS, WLPCT, CC
	6028			30	18	0	0	0	0	48	1,313.00																
7360	6029	4	ML	12	7	0	0	0	0	19	572.00	SOUTH	PR	2	4	6	H	75D	WHS	2	4	85	FNW	N	RS	CC	RS, WLPCT, CC
7360	6029	4	TP	23	0	0	0	0	0	23	574.00	SOUTH	PR	2	3	6	H	75D	WHS	2	4	85	FNW	N	RS	CC	RS, WLPCT, CC
	6029			35	7	0	0	0	0	42	1,146.00																

NORTH REVILLA - RECORD OF DECISION - UNIT LISTING																														PAGE 7 OF 17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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North Revilla ROD - Appendix 1

North Revilla ROD - Appendix 1

North Revilla ROD - Appendix 1

7380	8069	4	TP	36	16	0	0	52	1,400.00	EAST	MO	4	11	20	M	19E	WHC	3	1	70	FW	N	SL	CC	RS,R&W,CC
7380	8069	4	TP	8	4	0	0	12	326.00	EAST	MO	3	8	10	M	18D	CCD	3	1	91	FW	N	HL	CC	RS,CC
7380	8069	4	TP	8	5	0	0	13	358.00	EAST	MO	2	8	8	M	18D	CCD	3	1	74	FW	N	HL	CC	RS,CC
7380	8069	4	TP	12	0	0	0	12	299.00	EAST	MO	3	8	9	M	18D	CCD	3	1	71	FW	N	HL	CC	RS,CC
7380	8069	4	TP	1	4	0	0	5	151.00	EAST	MO	4	15	15	M	54F	WHM	3	1	100	FNW	N	HL	CC	RS,TMPCT,CC
7380	8069	4	TP	2	6	0	0	8	238.00	EAST	MO	4	15	15	M	54F	WHM	3	1	100	FNW	N	HL	CC	RS,TMPCT,CC
7380	8069	4	TP	6	9	0	0	15	432.00	EAST	MO	3	9	11	M	54F	WHM	3	1	77	FNW	N	RS	CC	RS,CC

	8069			73	44	0	0	117	3,204.00																
7380	8071	4	TP	2	6	0	0	8	238.00	NORTH	MO	3	8	9	M	2E	WDC	2	1	100	FNW	N	HL	CC	RS,TMPCT,CC
7380	8071	4	TP	3	6	0	0	9	263.00	NORTH	MO	3	7	7	M	2E	WDC	2	1	94	FNW	N	HL	CC	RS,CC
7380	8071	4	TP	5	6	0	0	11	312.00	NORTH	MO	3	6	7	M	2E	WDC	2	1	100	FNW	N	HL	CC	RS,TMPCT,CC
7380	8071	4	TP	3	3	0	0	6	169.00	NORTH	MO	3	6	6	M	2E	WDC	2	1	100	FNW	N	HL	CC	RS,TMPCT,CC
7380	8071	4	TP	2	1	0	0	3	81.00	NORTH	MO	3			M	2E	WDC	2	1	100	FNW	N	HL	CC	RS,CC
7380	8071	4	TP	2	2	0	0	4	112.00	NORTH	MO	2	7	7	M	18D	CCD	3	1	80	FW	N	HL	CC	RS,CC

	8071			17	24	0	0	41	1,175.00																
7380	8072	4	TP	13	0	0	0	13	325.00	EAST	MO	1	9	9	M	331D	WHC	3	1	62	FIC	N	HL	CC	RS,CC
7380	8072	4	TP	9	0	0	0	9	224.00	EAST	MO	1	8	9	M	331C	WHC	2	1	90	FIC	N	HL	CC	RS,TMPCT,CC
7380	8072	4	TP	6	0	0	0	6	204.00	EAST	MO	1	8	8	M	331C	WHC	2	1	90	FIC	N	HL	CC	RS,TMPCT,CC

	8072			28	0	0	0	28	753.00																
7380	8073	4	TP	0	28	0	0	28	878.00	NORTH	MO	4	5	8	H	4D	CMB	2	1	70	FW	N	SL	CC	RS,R&W,CC</

North Revilla ROD - Appendix 1

[illegible]

North Revilla ROD - Appendix 1

[illegible]



Appendix 2

ROD Unit Cards

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>4006</u>	No. Settings <u>2</u>	Alternatives considered <u>ROD</u>	VQO <u>M</u>
Planned acres <u>58</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>1529</u>		Mgmt Area <u>K32</u> VCU <u>7400</u>	Plant Series <u>WHC</u>
Logging methods <u>RS</u>		WAA <u>509</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-60</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 53 acres VC5 0 acres VC6 5 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 0 acres 800-1200 ft. 0 acres 1200-1500 ft. 12 acres over 1500 ft. 46 acres
Mass-movement index: Low 58 acres Medium 0 acres High 0 acres Very High 0 acres
Cedar 0 Hemlock 52 Mixed 6 Percent Seen 100 Percent Unseen 0 Aspect South

SOILS

This unit has 58 acres that may require partial or full suspension (BMP 13.9)
This unit may contain > 40% McGilvery soils. Field verification required to determine suitability.(BMP13.19)

This unit contains 26 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 29 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of M as seen from viewpoints within the BEHM/TRAITORS COVE viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

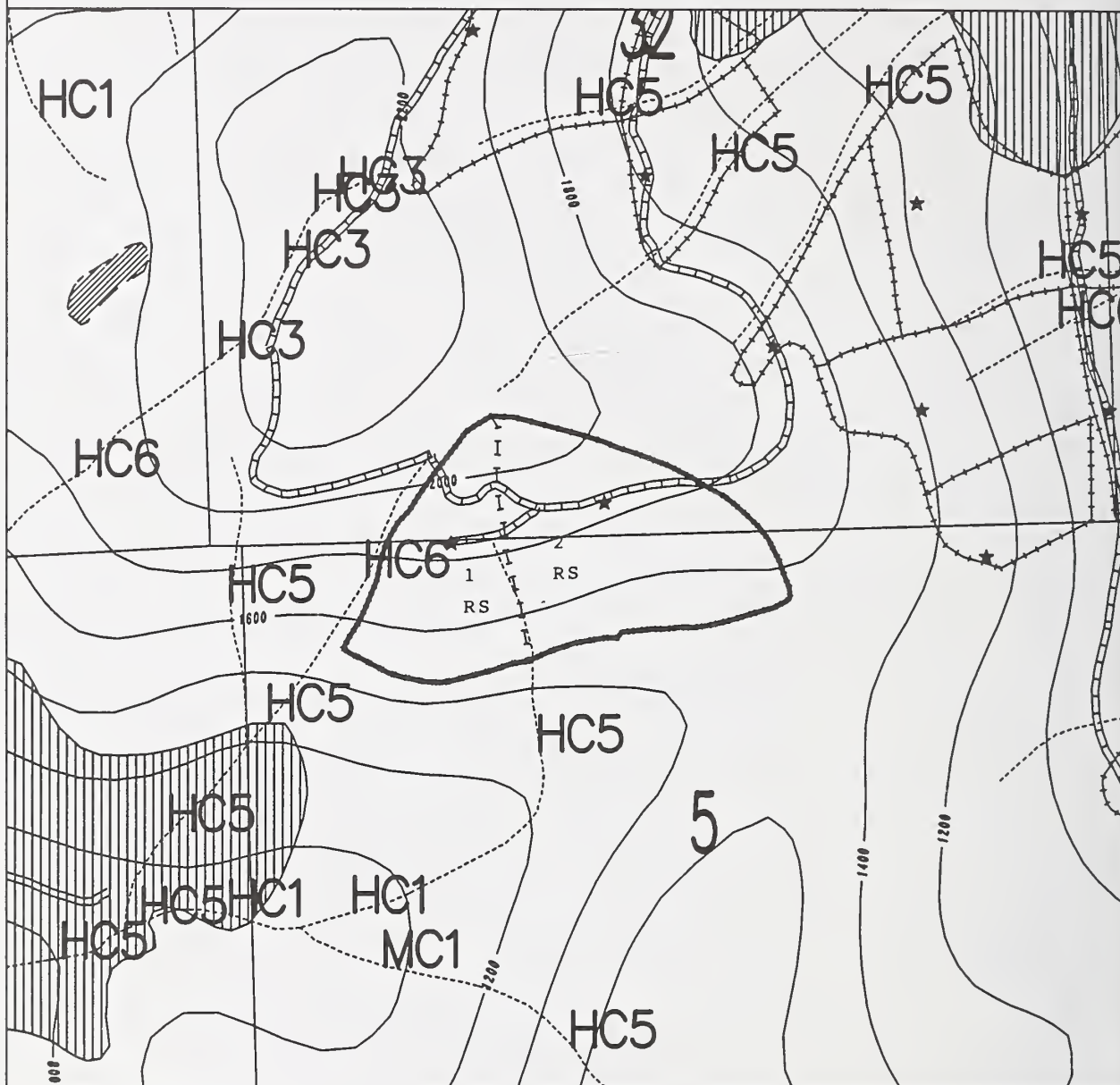
There are no geological mitigation measures anticipated for this unit.

VCU: 7400UNIT NUMBER: 4006

PLANNED HARVEST UNIT MAP

ACRES: 58 VOLUME: 1529 MBF QUAD(s): KTNC5 QUARTER QUAD(s): NWS
 PHOTO NUM.: 1179-60 LANDNET INFO TOWNSHIP 71S RANGE 90R

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL



200 FT CONTOUR INTERVAL
 0 1000 2000 feet

MAPSCALE 1:12000

LANDING ★

BACLE TREE (↑)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER



LOGGING SYSTEMS:
 RS RUNNING SKYLINE

SHELTERWOOD
 HARVEST
 BEACH BUFFER



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>7551</u>	No. Settings <u>4</u>	Alternatives considered <u>ROD</u>	VQO <u>M</u>
Planned acres <u>73</u>		Quad <u>KTND5SES</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2305</u>		Mgmt Area <u>K32</u> VCU <u>7370</u>	Plant Series <u>WHS</u>
Logging methods <u>RS LS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1279-10</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 31 acres VC5 42 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 0 acres 800-1200 ft. 5 acres 1200-1500 ft. 53 acres over 1500 ft. 15 acres
Mass movement index: Low 4 acres Medium 15 acres High 54 acres Very High 0 acres
Cedar 0 Hemlock 73 Mixed 1 Percent Seen 2 Percent Unseen 98 Aspect North

SOILS

This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 10 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).

TIMBER

Potential regeneration problem. May need to consider other silvicultural prescriptions (or hand plant) to meet BMP13.19.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of M as seen from viewpoints within the HEAD OF NEATS BAY viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7370UNIT NUMBER: 7551

PLANNED HARVEST UNIT MAP

ACRES: 73VOLUME: 2305

MBP

QUAD(s): KTND5QUARTER QUAD(s): SES/SWS

PHOTO NUM.:

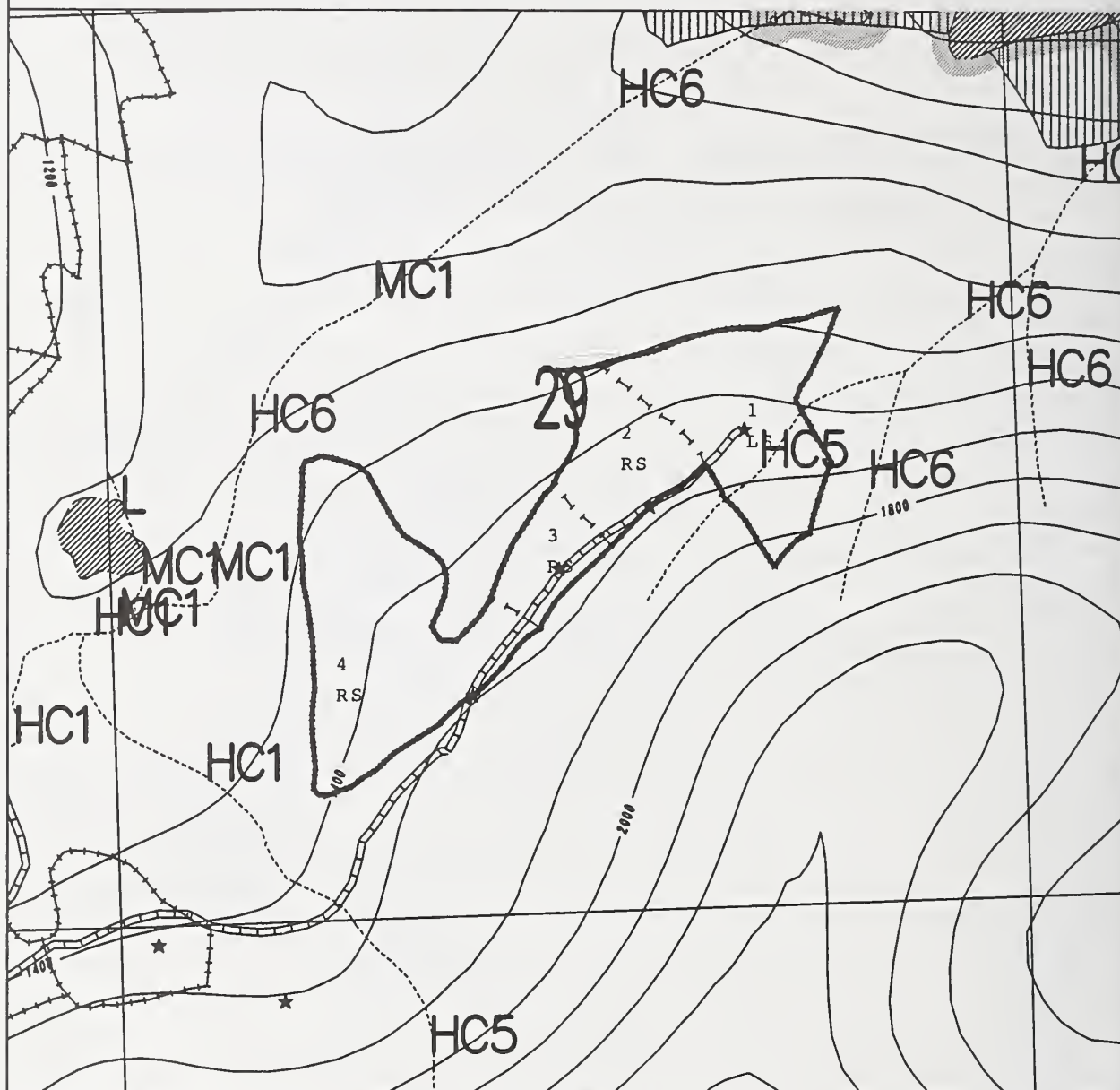
1279-10

LANDNET INFO

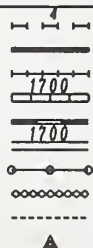
TOWNSHIP

70SRANGE 91E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
UNIT BOUNDARY
ADJACENT UNIT
OPPORTUNITY ROAD
EXISTING ROAD IN ALT
EXISTING ROAD NOT IN
CLASS I STREAM
CLASS II STREAM
CLASS III STREAM
LTP SYMBOL



200 PT CONTOUR INTERVAL
0 1000 2000 feet

MAP SCALE 1:12000

LANDING ★

BACLE TREE (↑)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER

LOGGING SYSTEMS:

LS LIVE SKYLINE

RS RUNNING SKYLINE

SHELTERWOOD

HARVEST

BEACH BUFFER



July 28, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8016</u>	No. Settings <u>2</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>40</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>1248</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>WHC</u>
Logging methods <u>HL</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-16</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 1 acres VC5 39 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 40 acres 800-1200 ft. 0 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 0 acres Medium 6 acres High 34 acres Very High 0 acres
Cedar 0 Hemlock 40 Mixed 0 Percent Seen 0 Percent Unseen 100 Aspect North

SOILS

This unit has 39 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit contains 10 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 11 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

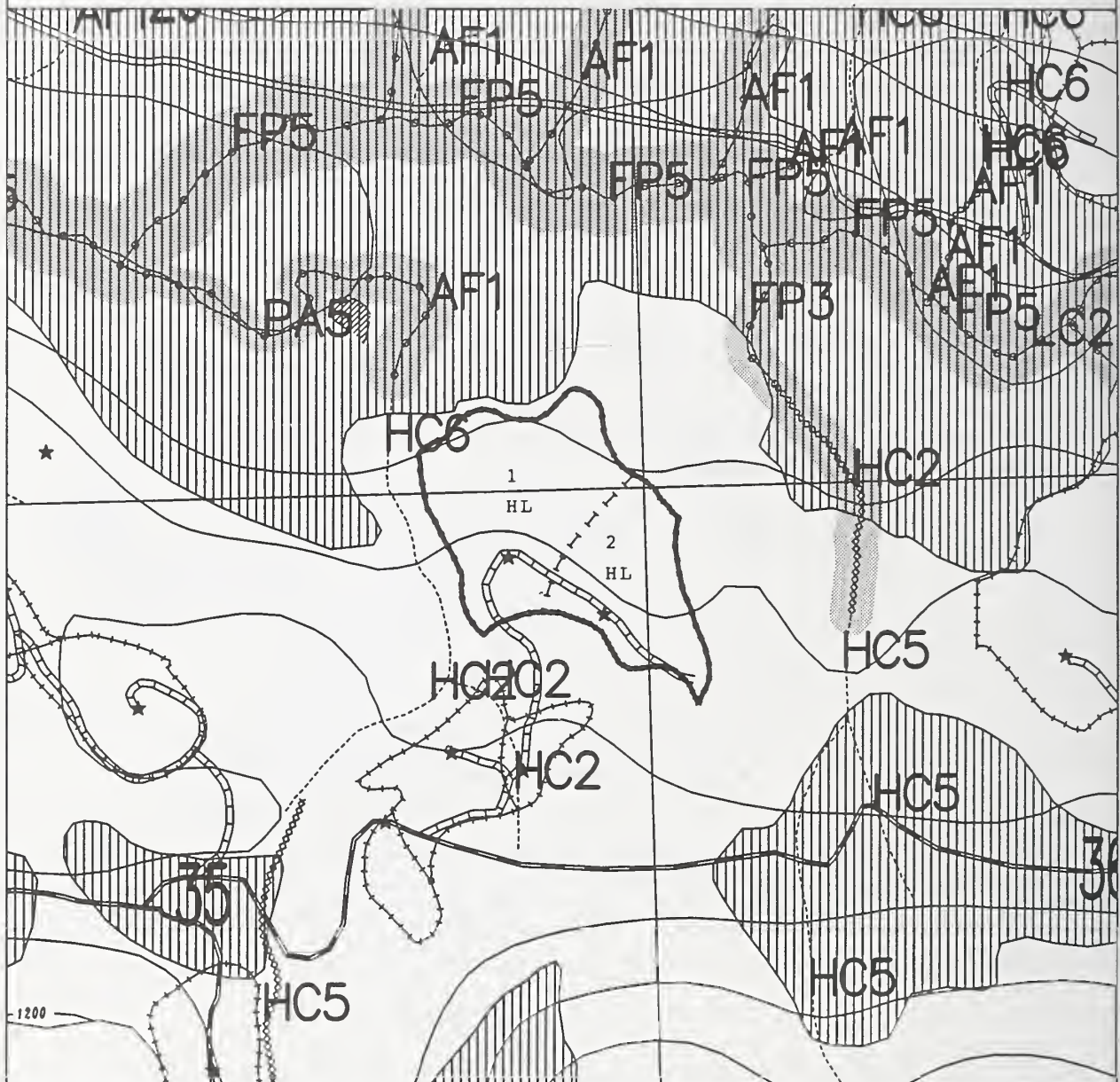
There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8016

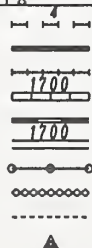
PLANNED HARVEST UNIT MAP

ACRES: 40 VOLUME: 1248 MBP QUAD(s): KTNC5 QUARTER QUAD(s): NWS
 PHOTO NUM.: 1179-16 LANDNET INFO TOWNSHIP 71S RANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL



200 FT CONTOUR INTERVAL
 0 1000 2000 feet

MAP SCALE 1:12000

LANDING ★

EAGLE TREE (↑)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER

LOGGING SYSTEMS:

HL HIGH LEAD

SHELTERWOOD

HARVEST

BEACH BUFFER



UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8024</u>	No. Settings <u>1</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>15</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>471</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>WHS</u>
Logging methods <u>HE</u>		WAA <u>510</u>	Forest type <u>Mixed conifer</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-17</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 15 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 4 acres 800-1200 ft. 4 acres 1200-1500 ft. 7 acres over 1500 ft. 0 acres
Mass movement index: Low 0 acres Medium 0 acres High 15 acres Very High 0 acres
Cedar 0 Hemlock 0 Mixed 15 Percent Seen 0 Percent Unseen 100 Aspect West

SOILS

This unit has 15 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 13 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).

TIMBER

Difficult topography - More complex/expensive yarding system may be require due to terrain.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).
Oversteepened slopes may require full bench construction on 0.04 miles of road and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8024

PLANNED HARVEST UNIT MAP

ACRES: 15VOLUME: 471

MBP

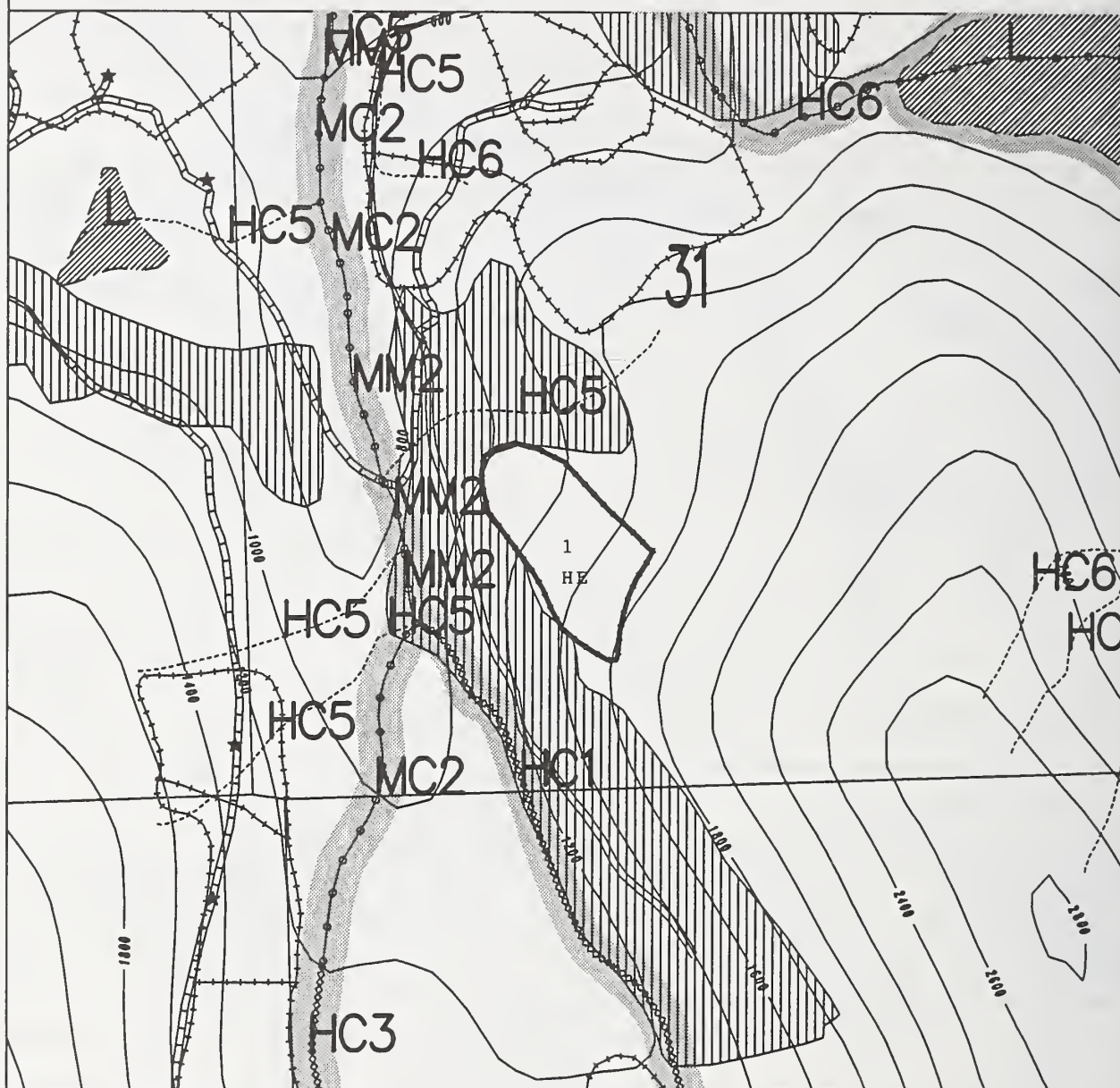
QUAD(s): KTNC5QUARTER QUAD(s): NWSPHOTO NUM.: 1179-17

LANDNET INFO

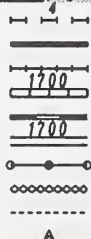
TOWNSHIP

71SRANGE 91E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
UNIT BOUNDARY
ADJACENT UNIT
OPPORTUNITY ROAD
EXISTING ROAD IN ALT
EXISTING ROAD NOT IN
CLASS I STREAM
CLASS II STREAM
CLASS III STREAM
LTP SYMBOL



200 FT CONTOUR INTERVAL
0 1000 2000 feet

MAPSCALE 1:12000

LANDING ★

EAGLE TREE (↑)

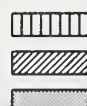
EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER

LOGGING SYSTEMS:

HE HELICOPTER



SHELTERWOOD
HARVEST
BEACH BUFFER



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8022</u>	No. Settings <u>4</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>66</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2029</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>CCS</u>
Logging methods <u>HL</u>		WAA <u>510</u>	Forest type <u>Mixed conifer</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-17</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 31 acres VC5 35 acres VC6 0 acres VC7 0 acres
 Elevation breakdown: 0-800 ft. 18 acres 800-1200 ft. 36 acres 1200-1500 ft. 12 acres over 1500 ft. 0 acres
 Mass movement index: Low 0 acres Medium 27 acres High 39 acres Very High 0 acres
 Cedar 0 Hemlock 33 Mixed 33 Percent Seen 0 Percent Unseen 100 Aspect North

SOILS

This unit has 66 acres that may require partial or full suspension (BMP 13.9)
 This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
 This unit has a possibility to have areas reclassified as MMI=4. Field verification required to determine suitability.(BMP13.19)
 This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
 This unit contains 9 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
 This unit contains 39 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.
 High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
 Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).
 Oversteepened slopes may require full bench construction on 0.74 miles of road and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are 4 streams which have fish passage requirements, of these passes 4 have timing restrictions (BMPs 13.4,14.3,14.6).

WILDLIFE

Maintain adequate distribution of snags by leaving 0.1 acre-sized patches of green trees within the unit for every 10 acres harvested. Snag patches must be compatible with logging system and safe working conditions.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
 There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

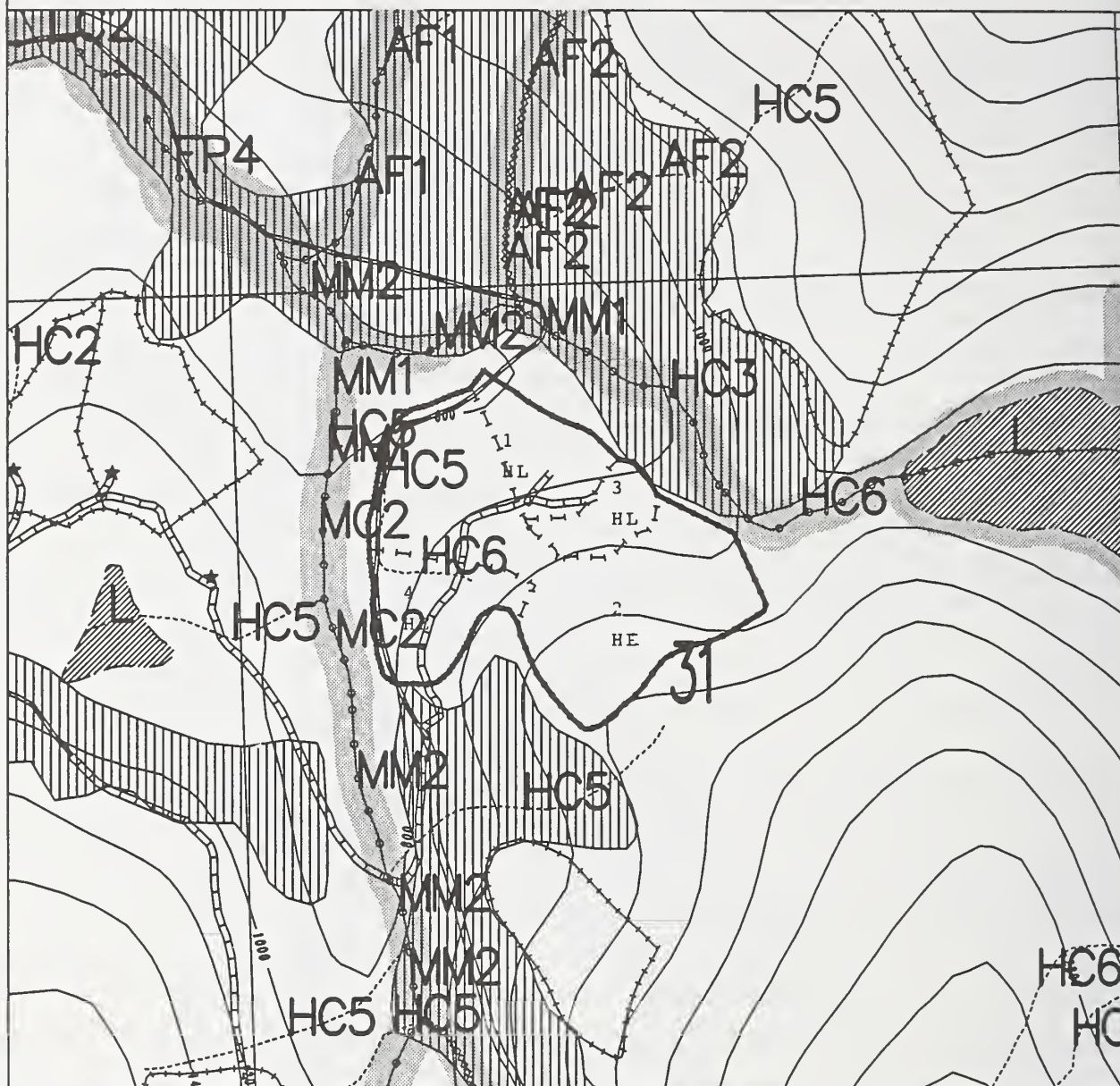
GEOLOGY

There are no geological mitigation measures anticipated for this unit.

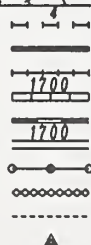
PLANNED HARVEST UNIT MAP

ACRES: 66 VOLUME: 2029 MBP QUAD(s): KTNC5 QUARTER QUAD(s): NWS
 PHOTO NUM.: 1179-17 LANDNET INFO TOWNSHIP 71S RANGE 91E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL



200 FT CONTOUR INTERVAL
 0 1000 2000 feet

MAPSCALE 1:12000

LANDING ★
 EAGLE TREE (upward arrow symbol)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER



LOGGING SYSTEMS:

HE HELICOPTER
 HL HIGHLEAD

SHELTERWOOD
 HARVEST
 BEACH BUFFER



UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8071</u>	No. Settings <u>6</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>41</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>1175</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>CCD</u>
Logging methods <u>HL</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-12</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 17 acres VC5 24 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 31 acres 800-1200 ft. 10 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 1 acres Medium 32 acres High 8 acres Very High 0 acres
Cedar 0 Hemlock 41 Mixed 0 Percent Seen 0 Percent Unseen 100 Aspect North

SOILS

This unit has 41 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit contains 9 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).

TIMBER

Difficult topography - More complex/expensive yarding system may be require due to terrain.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

Harvest operations restricted to April 1 to October 31 to protect trumpeter swans on Margaret, Orchard, Lakes, Klu Bay and the head of Traitors Cove.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8071

PLANNED HARVEST UNIT MAP

ACRES: 41VOLUME: 1175

MBP

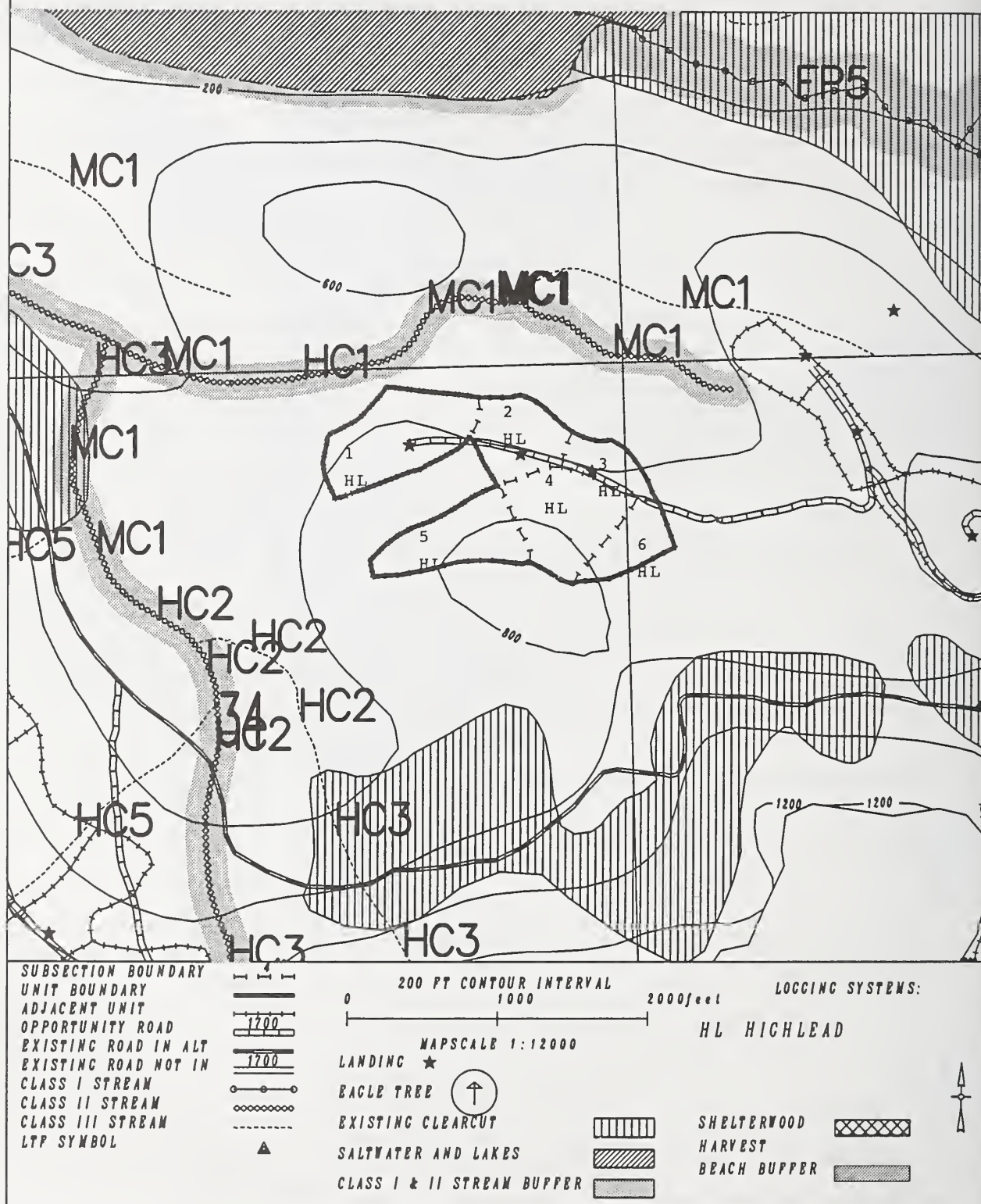
QUAD(s): KTNC5QUARTER QUAD(s): NWSPHOTO NUM.: 1179-12

LANDNET INFO

TOWNSHIP

71SRANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8072</u>	No. Settings <u>4</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>22</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>578</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>WHC</u>
Logging methods <u>HL</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1279-12</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 22 acres VC5 0 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 8 acres 800-1200 ft. 14 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 0 acres Medium 22 acres High 0 acres Very High 0 acres
Cedar 0 Hemlock 22 Mixed 0 Percent Seen 0 Percent Unseen 100 Aspect East

SOILS

This unit has 22 acres that may require partial or full suspension (BMP 13.9)
This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 16 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).

TIMBER

Difficult topography - More complex/expensive yarding system may be require due to terrain.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8072

NORTH KEYVILLA PROJECT HARVEST UNIT DESIGN CARD

PLANNED HARVEST UNIT MAP

ACRES: 22VOLUME: 578

MBP

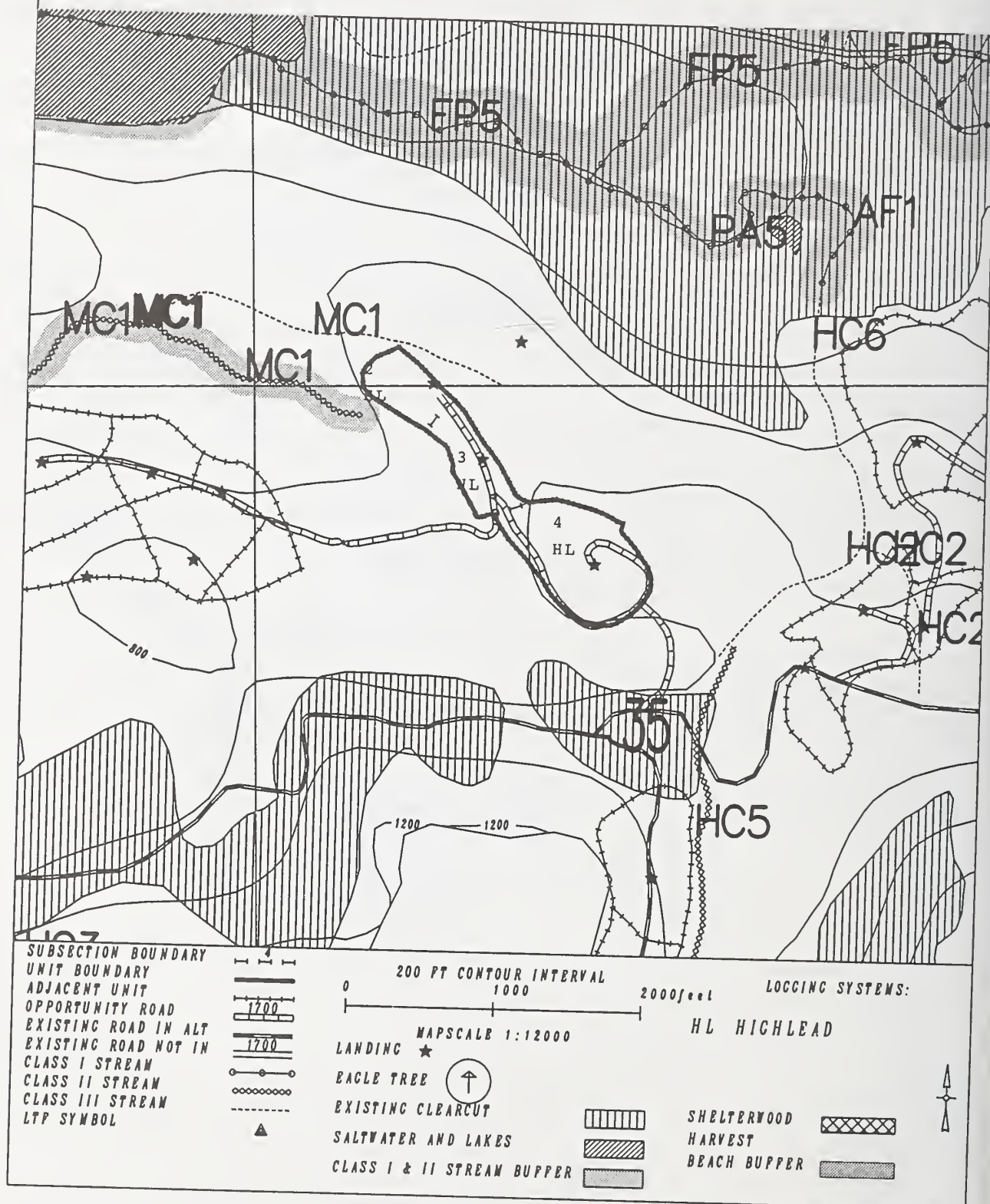
QUAD(s): KTNC5QUARTER QUAD(s): NWSPHOTO NUM.: 1279-12

LANDNET INFO

TOWNSHIP

71SRANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8076</u>	No. Settings <u>6</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>118</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>3697</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>CMM</u>
Logging methods <u>RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-60</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 49 acres VC5 69 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 38 acres 800-1200 ft. 56 acres 1200-1500 ft. 24 acres over 1500 ft. 0 acres
Mass movement index: Low 27 acres Medium 0 acres High 91 acres Very High 0 acres
Cedar 0 Hemlock 117 Mixed 1 Percent Seen 0 Percent Unseen 100 Aspect East

SOILS

This unit has 59 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit has < 40% McGilverly soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 22 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 12 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).
This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.
High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are 2 streams which have fish passage requirements, none of which have timing restrictions (BMP 14.6).

WILDLIFE

Maintain diversity within unit by leaving 1-5 acre-sized islands of green trees at a rate of 1 acre of island for every 20 acre harvested. Leave islands must be compatible with logging system and safe working conditions.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8076

PLANNED HARVEST UNIT MAP

ACRES: 118VOLUME: 3697

MBP

QUAD(s): KTNC5QUARTER QUAD(s): NWS

PHOTO NUM.:

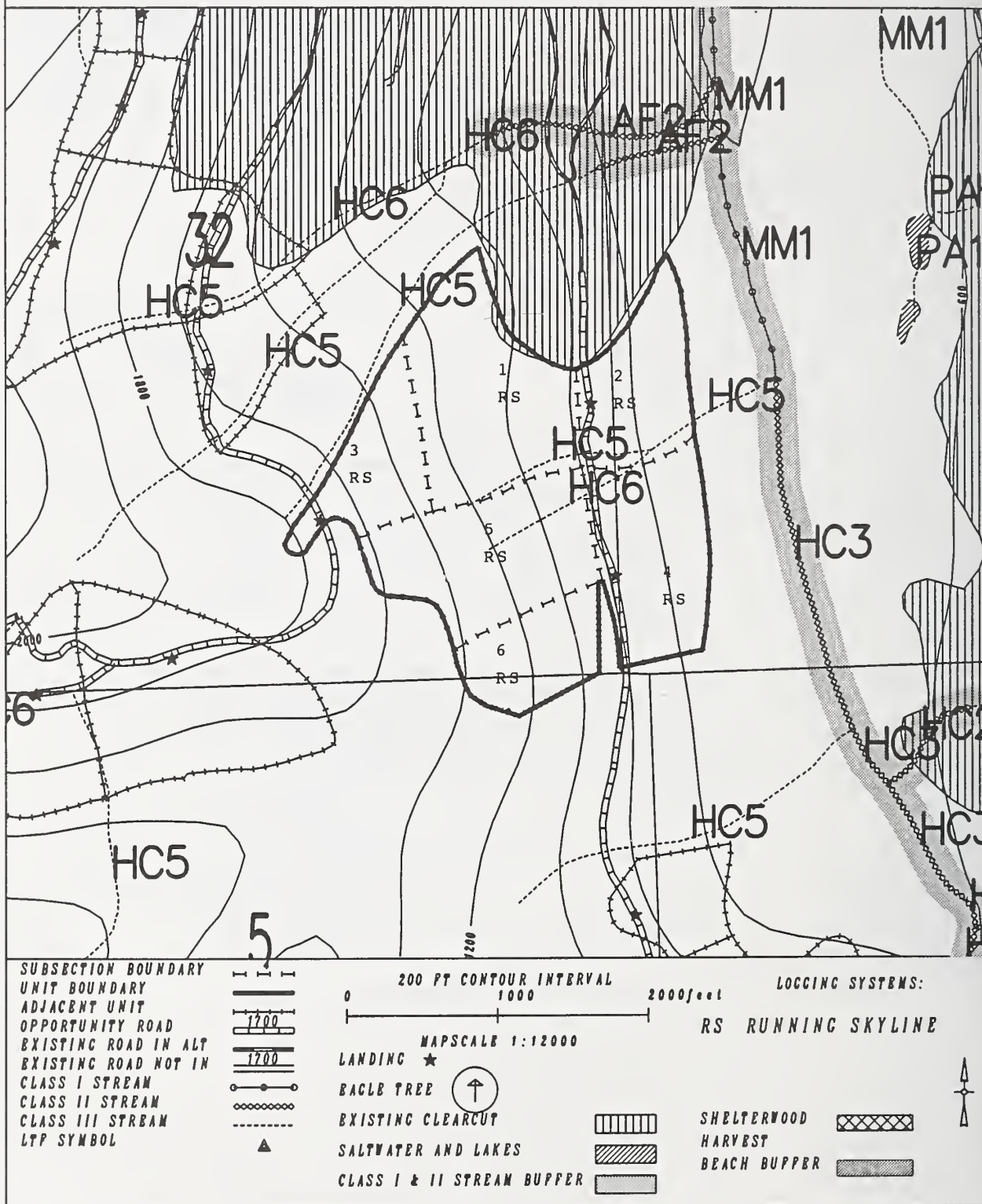
1179-60

LANDNET INFO

TOWNSHIP

71SRANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8077</u>	No. Settings <u>5</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>73</u>		Quad <u>KTNC5NWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2374</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>WDC</u>
Logging methods <u>HL SL RS</u>		WAA <u>510</u>	Forest type <u>Mixed conifer</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-61</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 8 acres VC5 51 acres VC6 14 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 0 acres 800-1200 ft. 0 acres 1200-1500 ft. 16 acres over 1500 ft. 57 acres
Mass movement index: Low 24 acres Medium 0 acres High 49 acres Very High 0 acres
Cedar 0 Hemlock 5 Mixed 68 Percent Seen 0 Percent Unseen 100 Aspect East

SOILS

This unit has 60 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit may contain > 40% McGilvery soils. Field verification required to determine suitability.(BMP13.19)

This unit contains 58 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).

This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

Very difficult road construction due to unstable, oversteepened slopes or extended steep grades. If road can not be surveyed, may need to revise logging system to helicopter.

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).

This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).

Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of MM, and is not seen within a viewshed.

There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8077

PLANNED HARVEST UNIT MAP

ACRES: 73VOLUME: 2374

MBP

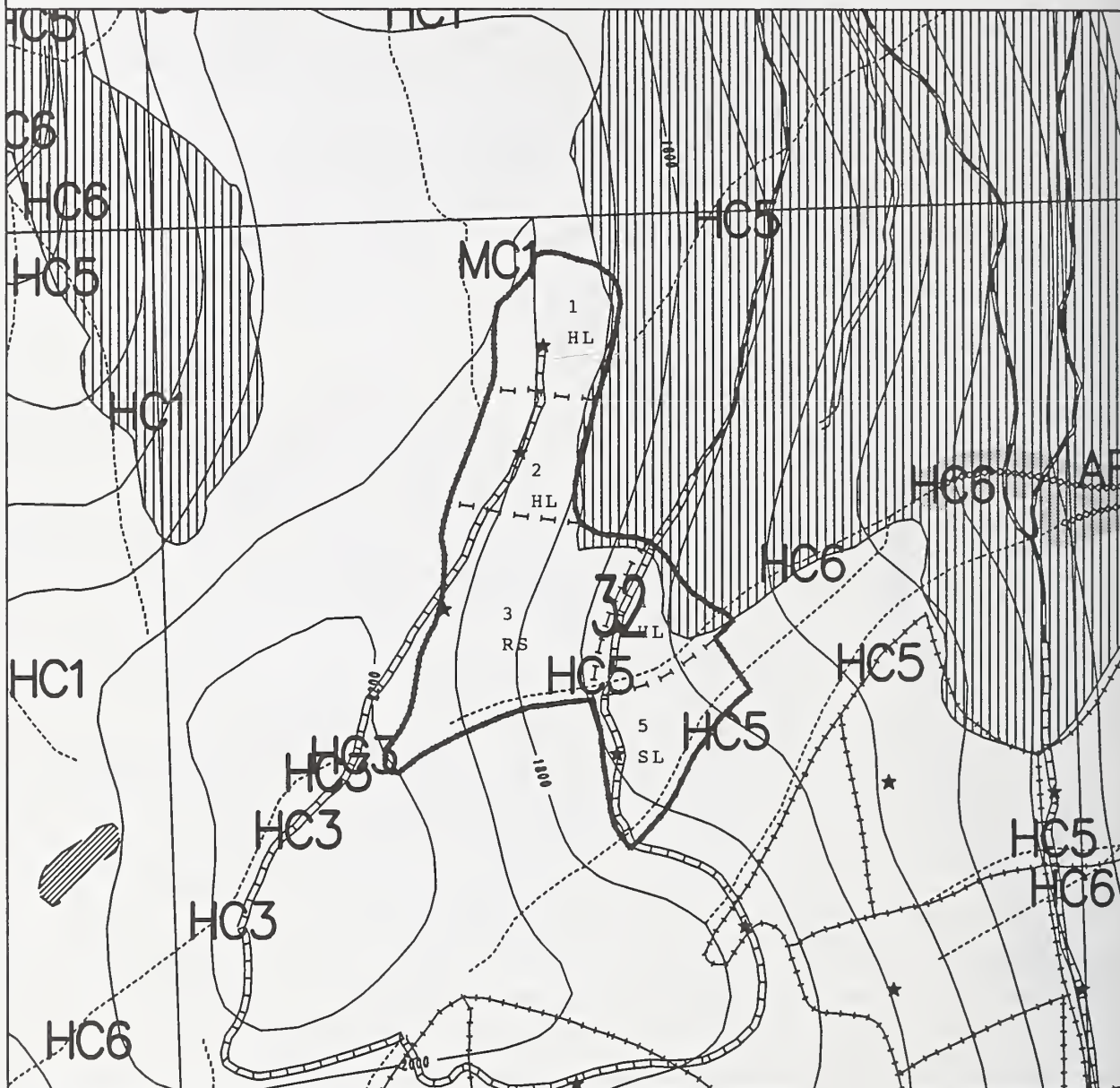
QUAD(s): KTNC5QUARTER QUAD(s): NWSPHOTO NUM.: 1179-61

LANDNET INFO

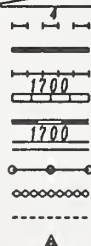
TOWNSHIP

71SRANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
UNIT BOUNDARY
ADJACENT UNIT
OPPORTUNITY ROAD
EXISTING ROAD IN ALT
EXISTING ROAD NOT IN
CLASS I STREAM
CLASS II STREAM
CLASS III STREAM
LTP SYMBOL



200 FT CONTOUR INTERVAL
0 1000 2000 feet

MAPSCALE 1:12000

LANDING ★
EAGLE TREE (↑)
EXISTING CLEARCUT
SALTWATER AND LAKES
CLASS I & II STREAM BUFFER



LOGGING SYSTEMS:

HL HIGHLEAD
RS RUNNING SKYLINE
SL SLACKLINE
SHELTERWOOD
HARVEST
BEACH BUFFER



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8080</u>	No. Settings <u>2</u>	Alternatives considered <u>ROD</u>	VQO <u>M</u>
Planned acres <u>39</u>		Quad <u>KTNC5NWN</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>1262</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>CMC</u>
Logging methods <u>HL</u> <u>RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-63</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 35 acres VC6 4 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 39 acres 800-1200 ft. 0 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 23 acres Medium 0 acres High 16 acres Very High 0 acres
Cedar 0 Hemlock 39 Mixed 0 Percent Seen 100 Percent Unseen 0 Aspect East

SOILS

This unit has 39 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit has a possibility to have areas reclassified as MMI=4. Field verification required to determine suitability.(BMP13.19)
This unit may contain > 40% McGilvery soils. Field verification required to determine suitability.(BMP13.19)

This unit contains 20 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 2 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).
This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

Possible active Bald Eagle nest site. Road construction within 1/2 mile of Bald Eagle nest site. If nest site is active follow the intra-agency agreement agreement with U.S. Fish & Wildlife.
Unit is adjacent to estuary or beach fringe; maintain 1000 or 500 ft buffer.

RECREATION / VISUALS

This unit has a adopted VQO of M as seen from viewpoints within the MARGARET COVE viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

Survey complete, results pending. No known cultural resources found.

GEOLOGY

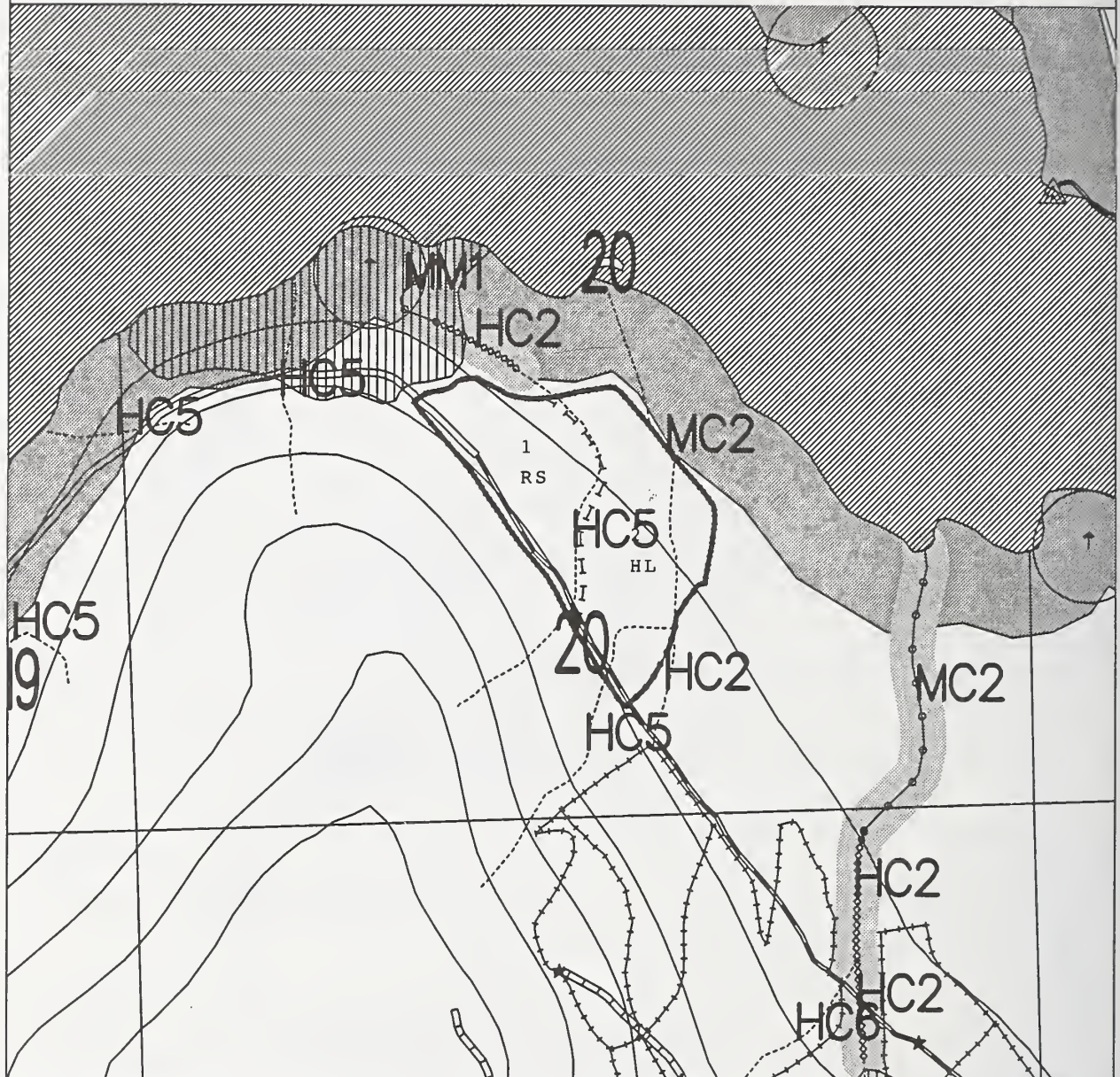
There are no geological mitigation measures anticipated for this unit.

VCU: 7380UNIT NUMBER: 8080

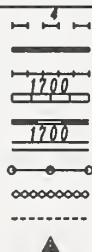
PLANNED HARVEST UNIT MAP

ACRES: 39 VOLUME: 1262 MBP QUAD(s): KTNC5 QUARTER QUAD(s): NWN
 PHOTO NUM.: 1179-63 LANDNET INFO TOWNSHIP 71S RANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL



200 FT CONTOUR INTERVAL
 0 1000 2000 feet

MAPSCALE 1:12000

LANDING ★

EAGLE TREE (↑)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER



LOGGING SYSTEMS:

RS RUNNING SKYLINE

HL HIGHLEAD

SHELTERWOOD
 HARVEST
 BEACH BUFFER



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>8082</u>	No. Settings <u>5</u>	Alternatives considered <u>ROD</u>	VQO <u>MM</u>
Planned acres <u>59</u>		Quad <u>KTNC6NWN</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2269</u>		Mgmt Area <u>K32</u> VCU <u>7380</u>	Plant Series <u>CMB</u>
Logging methods <u>HL RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-63</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 24 acres VC6 35 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 26 acres 800-1200 ft. 33 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 22 acres Medium 0 acres High 37 acres Very High 0 acres
Cedar 0 Hemlock 59 Mixed 0 Percent Seen 100 Percent Unseen 0 Aspect East

SOILS

This unit has 21 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit may contain > 40% McGilvery soils. Field verification required to determine suitability.(BMP13.19)

This unit contains 18 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 35 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).
This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

Difficult topography - More complex/expensive yarding system may be require due to terrain.
Potential regeneration problem. May need to consider other silvicultural prescriptions (or hand plant) to meet BMP13.19.
Potentially very low volume per acre.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of MM as seen from viewpoints within the MARGARET COVE viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

Survey complete, results pending. No known cultural resources found.

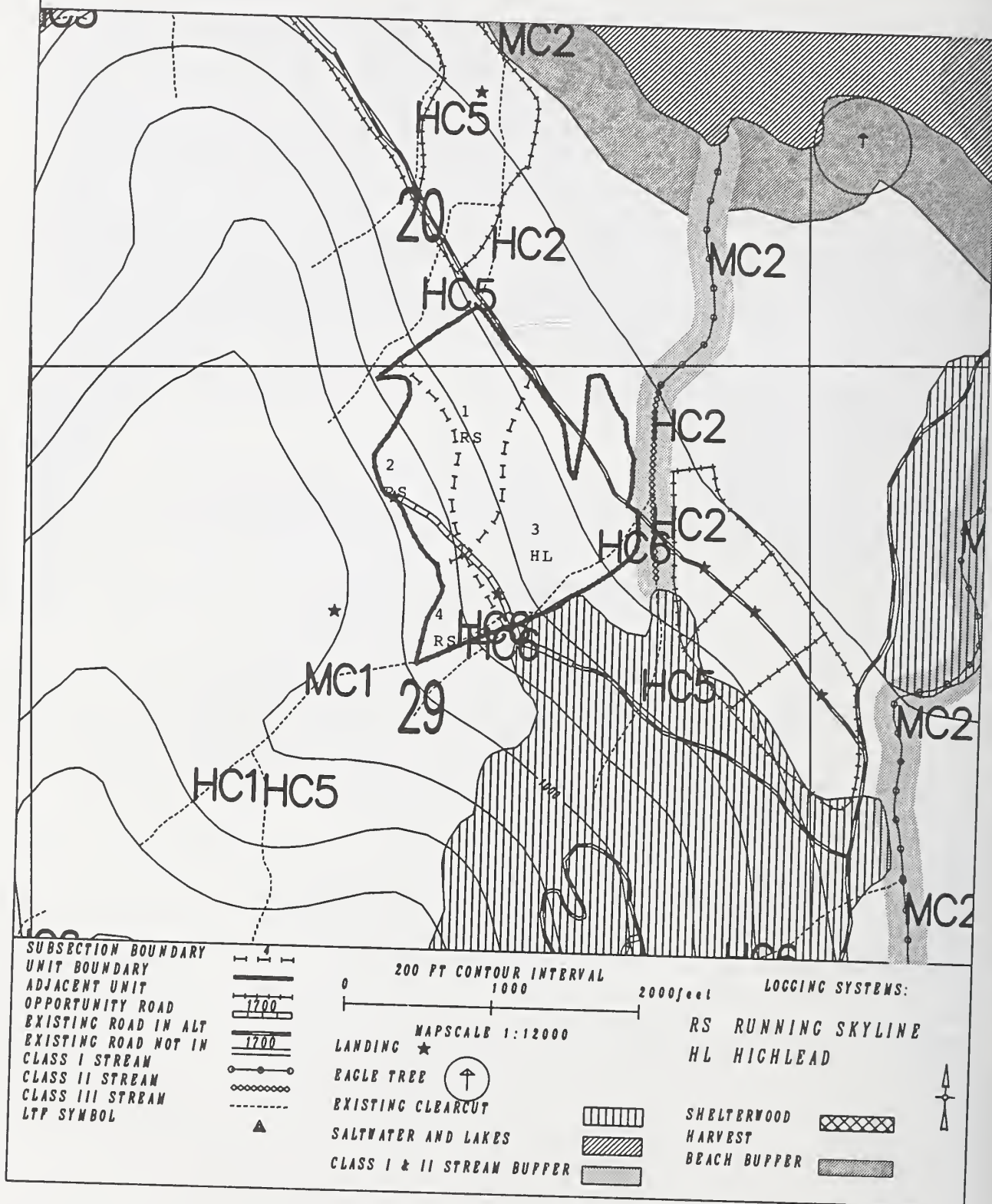
GEOLOGY

There are no geological mitigation measures anticipated for this unit.

PLANNED HARVEST UNIT MAP

ACRES: 59 VOLUME: 2269 MDP QUAD(s): KTNC5 QUARTER QUAD(s): NWN/NWS
PHOTO NUM.: 1179-63 LANDNET INFO TOWNSHIP 71S RANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>9050</u>	No. Settings <u>2</u>	Alternatives considered <u>ROD</u>	VQO <u>PR</u>
Planned acres <u>49</u>		Quad <u>KTNC5NWN</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>1693</u>		Mgmt Area <u>K32</u> VCU <u>7390</u>	Plant Series <u>WHC</u>
Logging methods <u>RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-18</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 49 acres VC6 0 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 38 acres 800-1200 ft. 11 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 4 acres Medium 3 acres High 8 acres Very High 34 acres
Cedar 0 Hemlock 47 Mixed 2 Percent Seen 100 Percent Unseen 0 Aspect West

SOILS

This unit has 12 acres that may require partial or full suspension (BMP 13.9)
This unit has very high mass movement index soils.
This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 41 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).
This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).
This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

Possible active Bald Eagle nest site. Road construction within 1/2 mile of
Bald Eagle nest site. If nest site is active follow the intra-agency agreement
agreement with U.S. Fish & Wildlife.

RECREATION / VISUALS

This unit has a adopted VQO of PR as seen from viewpoints within the INNER TRAITORS COVE viewshed,
approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

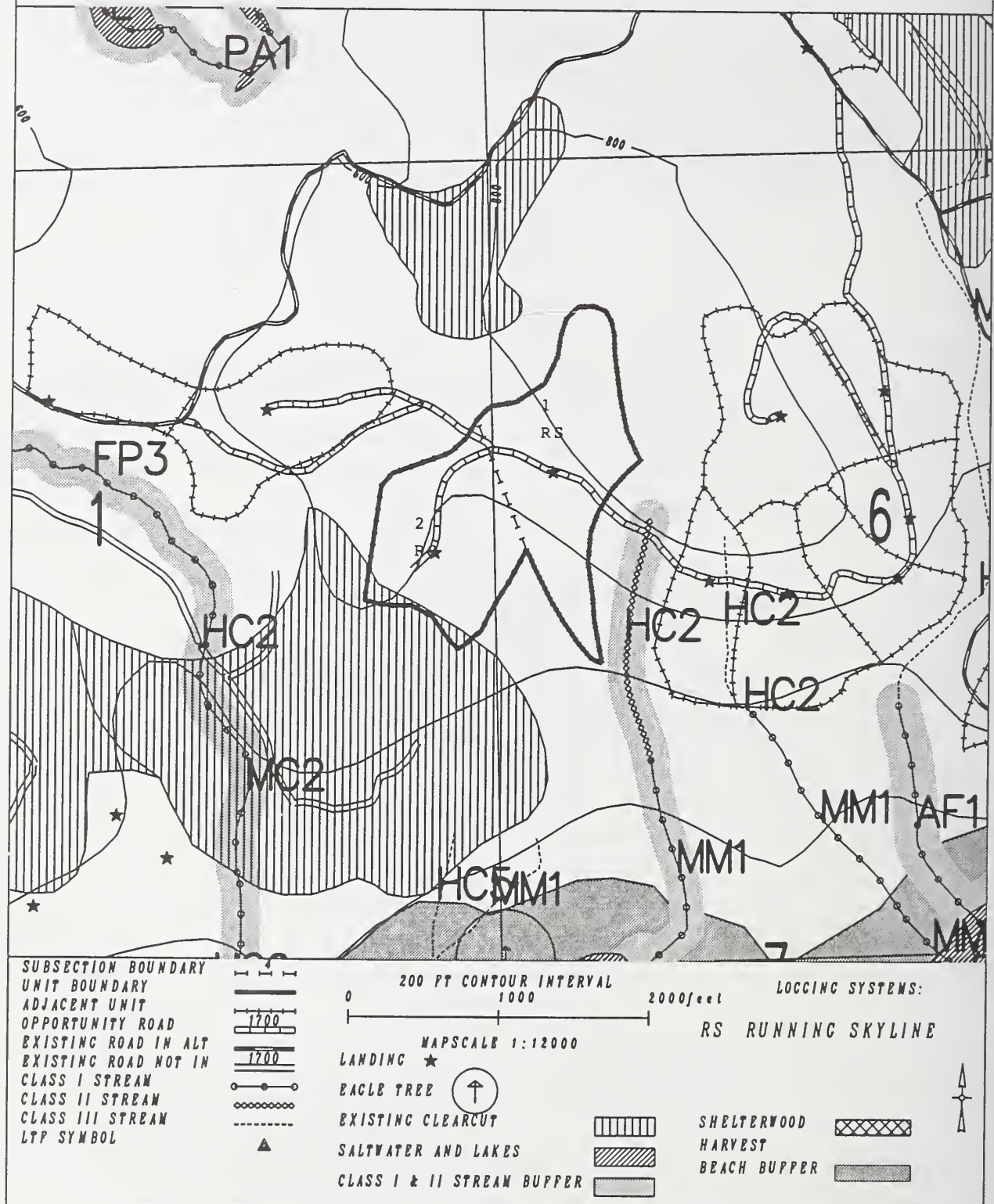
There are no geological mitigation measures anticipated for this unit.

VCU: 7390UNIT NUMBER: 9050

PLANNED HARVEST UNIT MAP

ACRES: 49 VOLUME: 1693 MBP QUAD(s): KTNC5 QUARTER QUAD(s): NWN
 PHOTO NUM.: 1179-18 LANDNET INFO TOWNSHIP 71S RANGE 91E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>9051</u>	No. Settings <u>5</u>	Alternatives considered <u>ROD</u>	VQO <u>M</u>
Planned acres <u>73</u>		Quad <u>KTND5SWS</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2647</u>		Mgmt Area <u>K32</u> VCU <u>7390</u>	Plant Series <u>CCD</u>
Logging methods <u>HL RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-18</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 58 acres VC6 15 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 30 acres 800-1200 ft. 32 acres 1200-1500 ft. 11 acres over 1500 ft. 0 acres
Mass movement index: Low 6 acres Medium 27 acres High 40 acres Very High 0 acres
Cedar 0 Hemlock 73 Mixed 0 Percent Seen 68 Percent Unseen 32 Aspect South

SOILS

This unit has 7 acres that may require partial or full suspension (BMP 13.9)
This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)
This unit has < 40% McGilverly soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 31 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).

TIMBER

Difficult topography - More complex/expensive yarding system may be require due to terrain.

ENGINEERING

High mass movement index soils. Road construction must minimize landslide potential (BMP14.7).

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of M as seen from viewpoints within the INNER TRAITORS COVE viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

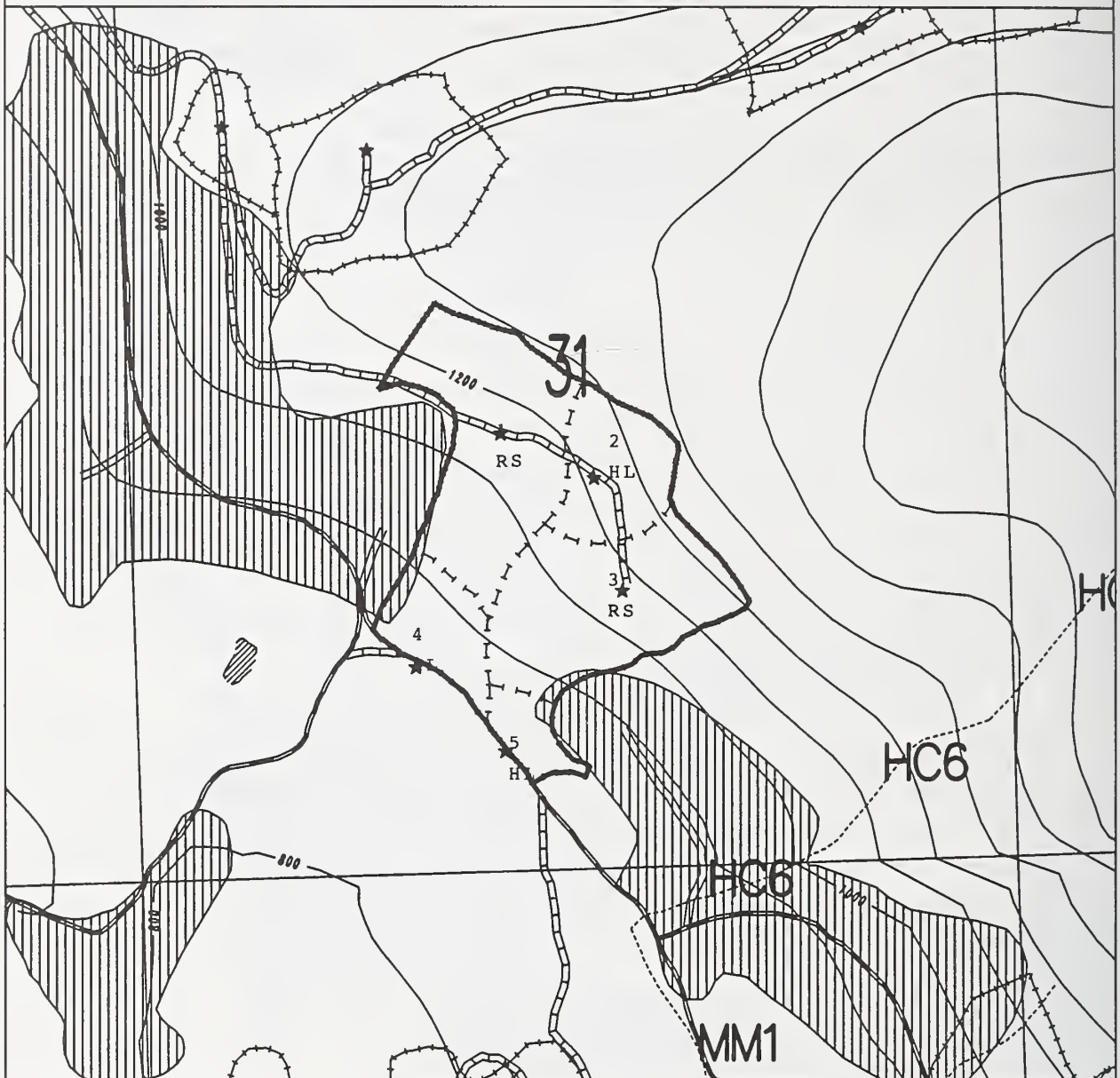
There are no geological mitigation measures anticipated for this unit.

VCU: 7390UNIT NUMBER: 9051

PLANNED HARVEST UNIT MAP

ACRES: 73 VOLUME: 2647 MBP QUAD(s): KTND5 QUARTER QUAD(s): SWS
 PHOTO NUM.: 1179-18 LANDNET INFO TOWNSHIP 70S RANGE 91E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL

200 FT CONTOUR INTERVAL
 0 1000 2000 feet

MAP SCALE 1:12000

LANDING ★

EAGLE TREE (↑)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER

LOGGING SYSTEMS:

HL HIGH LEAD

RS RUNNING SKYLINE

SHELTERWOOD

HARVEST

BEACH BUFFER

July 26, 1993

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit <u>9052</u>	No. Settings <u>6</u>	Alternatives considered <u>ROD</u>	VQO <u>PR</u>
Planned acres <u>88</u>		Quad <u>KTNC5NWN</u>	Windthrow risk <u>H</u>
Estimated volume (mbf) <u>2745</u>		Mgmt Area <u>K32</u> VCU <u>7390</u>	Plant Series <u>CMM</u>
Logging methods <u>HL</u> <u>RS</u>		WAA <u>510</u>	Forest type <u>Hemlock</u>
Silvicultural system <u>Clearcut</u>		1981 Photo <u>1179-18</u>	

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 79 acres VC6 9 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 64 acres 800-1200 ft. 24 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 19 acres Medium 0 acres High 0 acres Very High 69 acres
Cedar 0 Hemlock 79 Mixed 9 Percent Seen 59 Percent Unseen 41 Aspect South

SOILS

This unit has 17 acres that may require partial or full suspension (BMP 13.9)
This unit has very high mass movement index soils.
This unit has < 40% McGilvery soils. Partial suspension required (BMP13.9) to ensure reforestation (BMP13.19).
This unit contains 8 acres of forested wetlands. Site specific BMPs will be designed for selected approved logging system and road construction practices. (BMPs 12.5, 13.9, 13.15).
This unit contains 67 mapped acres on very steep slopes. Field verification required to determine suitability (BMP13.19).
This unit may contain riparian soils. Maintain water quality and fish habitat (BMPs12.6, 13.9).

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

This unit contains riparian areas. Use site specific BMPs to maintain water quality and fish habitat/passage during road construction (BMP14.13).
Oversteepened slopes may require full bench construction and endhaul of waste (BMP14.7).

FISH/WATERSHED

There are 1 streams which have fish passage requirements, none of which have timing restrictions (BMP 14.6).

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of PR as seen from viewpoints within the INNER TRAITORS COVE viewshed, approximately a minimum 1/4 mile from shoreline.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

There are no geological mitigation measures anticipated for this unit.

ACRES: 88 VOLUME: 2745 MBP QUAD(s): KTNC5 QUARTER QUAD(s): NWN
 PHOTO NUM.: 1179-18 LANDNET INFO TOWNSHIP 71S RANGE 91E

[illegible]

UNIT PLAN/LAYOUT/SALE ADMINISTRATION CARD FOR NRPA DEIS

Unit 9569 No. Settings 1
Planned acres 5
Estimated volume (mbf) 169
Logging methods HL 75
Silvicultural system Clearcut

Alternatives considered ROD
Quad KTND55WS
Mgmt Area K32 VCU 7390
WAA 510
1981 Photo 1179-16

VQO M
Windthrow risk H
Plant Series WHM
Forest type Hemlock

PHYSICAL DESCRIPTION

Volume class breakdown: VC4 0 acres VC5 2 acres VC6 3 acres VC7 0 acres
Elevation breakdown: 0-800 ft. 5 acres 800-1200 ft. 0 acres 1200-1500 ft. 0 acres over 1500 ft. 0 acres
Mass movement index: Low 2 acres Medium 0 acres High 3 acres Very High 0 acres
Cedar 0 Hemlock 3 Mixed 2 Percent Seen 56 Percent Unseen 43 Aspect East

SOILS

This unit has high mass movement index soils. Partial log suspension required over these areas.(BMP13.9)

TIMBER

There are no timber mitigation measures anticipated for this unit.

ENGINEERING

There are no engineering mitigation measures anticipated for this unit.

FISH/WATERSHED

There are no fishery mitigation measures anticipated for this unit.

WILDLIFE

There are no wildlife mitigation measures anticipated for this unit.

RECREATION / VISUALS

This unit has a adopted VQO of M, and is not seen within a viewshed.
There are no visual mitigation measures anticipated for this unit.

LANDS

There are no State & private lands or special-use authorizations near this unit.

CULTURAL RESOURCES

There are no cultural resource mitigation measures anticipated for this unit.

GEOLOGY

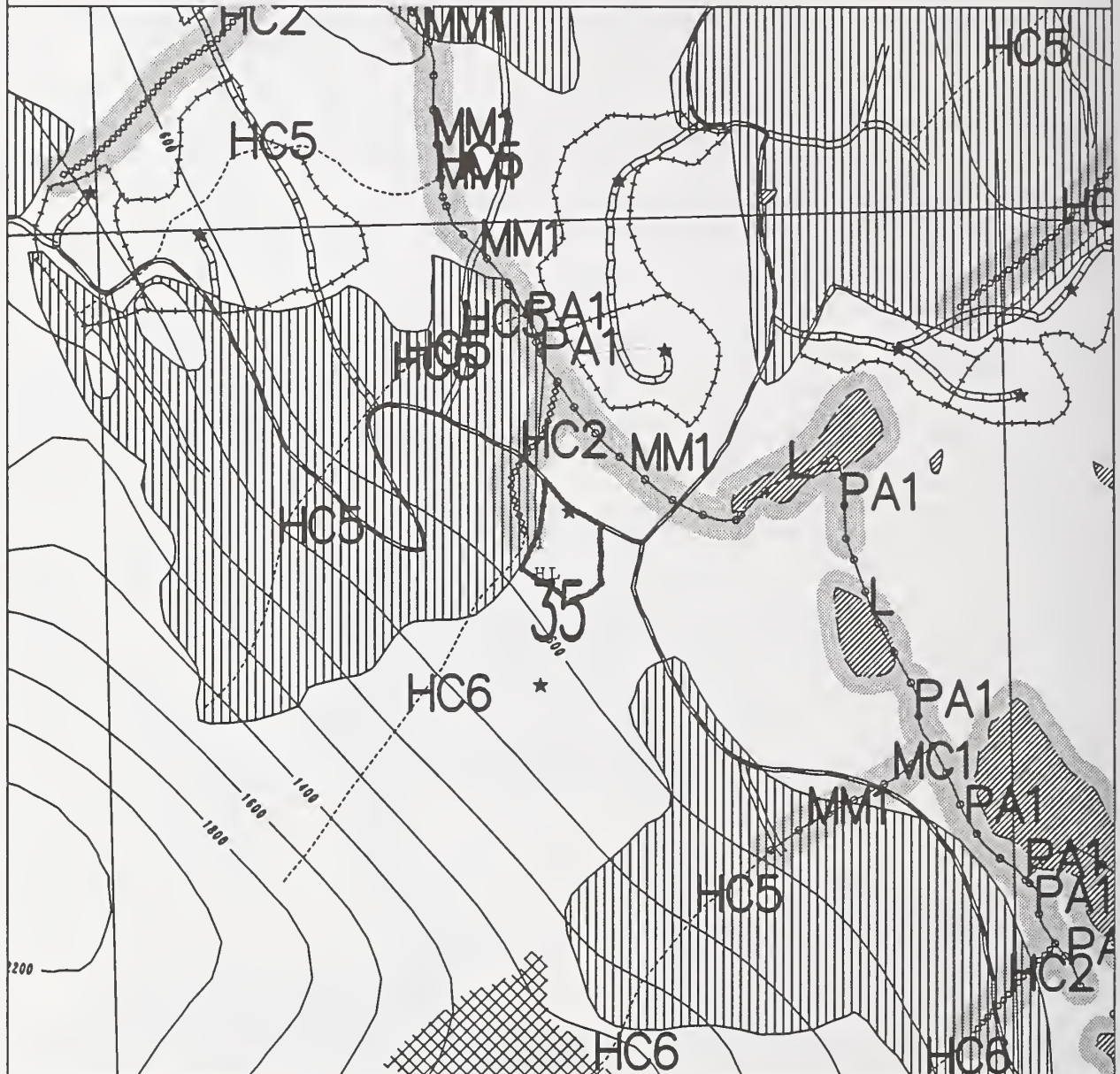
There are no geological mitigation measures anticipated for this unit.

VCU: 7390UNIT NUMBER: 9569

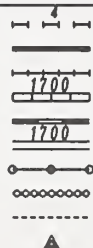
PLANNED HARVEST UNIT MAP

ACRES: 5 VOLUME: 169 MBP QUAD(s): KTND5 QUARTER QUAD(s): SWS
 PHOTO NUM.: 1179-16 LANDNET INFO TOWNSHIP 70S RANGE 90E

Refer to the Logging/Transportation Plan overlay for the indicated aerial photograph to supplement the following intended design of the harvest unit and associated roads.



SUBSECTION BOUNDARY
 UNIT BOUNDARY
 ADJACENT UNIT
 OPPORTUNITY ROAD
 EXISTING ROAD IN ALT
 EXISTING ROAD NOT IN
 CLASS I STREAM
 CLASS II STREAM
 CLASS III STREAM
 LTP SYMBOL



200 FT CONTOUR INTERVAL
 0 1000 2000 feet
 MAP SCALE 1:12000

LANDING ★

EAGLE TREE (⬆)

EXISTING CLEARCUT

SALTWATER AND LAKES

CLASS I & II STREAM BUFFER

LOGGING SYSTEMS:

HL HIGH LEAD

SHELTERWOOD

HARVEST

BEACH BUFFER



July 26, 1993

